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Accounting for Foundry Overhead Expense

Attempt to Give Simplest Possible Method of Distributing General Expenses Equitably—Steam and Power Considered

BY F. C. EVERITT AND JOHNSON HEYWOOD*

WRONG costs frequently come from considering the overhead expense of the business as a whole; a fault largely due to old-fashioned accountants who lumped all figures and were interested only to find out at the end of the year how much money the business as a whole had made or lost. Modern cost finding aims to discover not only "how

*Of Miller, Franklin, Basset & Co., Inc., New York. In the issue of April 26 was given the procedure for material cost accounting and in the issue of June 14 that for labor cost accounting.

much," but "why." That requires that the figures be divided and subdivided so that the manager may know, say, that the final profit of \$100,000 represents a loss of \$20,000 on one line and a profit of \$120,000 on another. He wishes also to know if the profit was made in spite of exceedingly inefficient methods in one manufacturing department which were more than offset by excellent methods in another.

The overhead expense is in effect a rental which each casting must pay for the manufacturing facilities which the business provides, and it should be plain

YEAR

For the Month of

Normal Actual Period to Date

EXPENSE ANALYSIS

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EXPENSE ANALYSIS

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1	STEAM (BOILER)	FOR MONTH OF JANUARY			PERCENT	AMOUNT
		NORMAL	ACTUAL	PERIOD TO DATE		
	FIREMAN		15.00			
	MAINTENANCE LABOR		4.00			
	MISCEL. LABOR		50.00			
	OILS, GREASE, WASTE		20.00			
	SMALL TOOLS		10.00			
	BOILER COMPOUND		7.00			
	MISCEL. SUPPLIES		150.00			
	FUEL		10.00			
	MAINTENANCE MATERIALS		385.00			
	TOTAL DIRECT EXPENSE		798			
	SHARE DIVER CHARGES		393.98			
	TOTAL STEAM EXPENSE					
	DISTRIBUTED TO:-					
	DEPARTMENTS	PERCENT	AMOUNT			
	2. POWER & LIGHT	10	39.55			
	3. TOOL & MAINTENANCE	8	31.92			
	4. PATTERNS SHOP	10	39.60			
	5. GENERAL OFFICE	8	31.52			
	6. FACTORY	8	31.52			
	7. FOUNDRY	4	15.76			
	8. MELTING	8	31.52			
	9. CORE ROOM	15	59.07			
	10. MACHINING	8	31.52			
	11. CLEANING	3	11.87			
	12. ANNEALING	14	55.15			
	13. MACHINE SHOP	4	15.76			
	14. PACK & SHIP					
	TOTALS	100.00	393.98			

2 PAGE

EXPENSE ANALYSIS

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2	POWER & LIGHT	FOR MONTH OF JANUARY			PERCENT	AMOUNT
		NORMAL	ACTUAL	PERIOD TO DATE		
	ENGINEER		200.00			
	MAINTENANCE LABOR		31.00			
	MISCEL. LABOR		80.00			
	OILS, GREASE, WASTE		30.00			
	SMALL TOOLS		20.00			
	MISCEL. SUPPLIES		38.00			
	POWER & LIGHT PURCHASED		60.00			
	MAINTENANCE MATERIALS		60.00			
	TOTAL DIRECT EXPENSE		573.00			
	SHARE DIVER CHARGES		39.40			
	TOTAL P.&L.T. EXPENSE		11.06			
	DISTRIBUTED TO:-					
	DEPARTMENTS	PERCENT	AMOUNT			
	3. TOOL & MAINTENANCE	10	39.55			
	4. PATTERNS SHOP	12	60.61			
	5. GENERAL OFFICE	2	10.07			
	6. FACTORY	8	60.88			
	7. FOUNDRY	4	30.16			
	8. MELTING	10	60.88			
	9. CORE ROOM	3	15.10			
	10. MACHINING	12	60.61			
	11. CLEANING	12	60.61			
	12. ANNEALING	4	30.16			
	13. MACHINE SHOP	21	105.72			
	14. PACK & SHIP	2	10.07			
	TOTALS	100.00	573.00			

How Departmental Expense Items Are Compiled and then Allocated to Other Departments

that one casting will use more of some of the facilities than will another. A compact, heavy, simple casting will properly carry only a slight proportion of the molding expense, although it may take a much larger share of the melting expense. A large, complicated but light casting will take more molding expense and less melting expense.

Each casting must be charged with its proper share of the overhead of each manufacturing department whose facilities it uses. To do that, the total overhead of each department must be gathered separately, and a way found by which to measure the proper share of each department's overhead which each casting should bear. It may be spread on the basis of the productive payroll dollar, productive hour, machine hour, weight of casting or in any of a number of other ways.

The test for a department—or as it is sometimes called "production center"—for cost purposes is: "Can the overhead expense of all operations in this department be justly spread on the same basis?" If not, further subdivision is necessary.

For instance, bench molding should not be charged with a part of the expense of heavy machine molding which requires constant crane services. The bench floor may perhaps be operated with an overhead of 75 per cent on the direct labor, while the heavy machine work with crane service may show an overhead of 200 per cent or be operated on the basis of expense per machine hour. If there are widely varying conditions due to the character of the work and the nature of the equipment, the molding floor must be divided into several departments.

Departments of a Foundry

The proper departments can be set up only after a thorough investigation by men familiar both with foundry practice and cost finding principles. The departments needed by a foundry will depend upon the kind of work done. The following are fairly typical of what most foundries require:

No.	Department Name	No.	Department Name
1	Steam (boiler)	9	Core room
2	Power and light	10	Molding
3	Tool and maintenance	11	Cleaning
4	Pattern shop	12	Annealing
5	General office	13	Machine shop
6	General factory	14	Packing and shipping
7	General foundry	15	Selling expense
8	Melting		

In a gray iron foundry, the annealing department would be left out. We include it here because it presents some difficult problems.

Other foundries might need such other departments as carpenter shop, blacksmith, electrical and so on. In the foundry whose departments have been listed, the pattern shop will handle all carpentry, while the blacksmith, electricians, plumbers, millwrights, etc., are included in the tool and maintenance departments. This combination is usual in medium-sized foundries, while in larger ones a division is quite necessary.

In a stove and range plant, the machine shop would be replaced by the departments for cast iron mounting, sheet metal mounting, pipe cutting, japanning, nickeling, punch press and forming and so on. In a plant where much testing is necessary, such as in the manufacture of radiators, boilers, etc., there would be such departments as first test, machining, assembling, second test, finishing, etc. In the malleable plant, the cleaning must be divided into hard iron cleaning, sand blasting, soft iron cleaning, testing and inspection, straightening, etc.

A steel foundry would be divided into the same departments as the gray iron foundry, although the detailed method of handling the melting department would be changed somewhat to suit the different method of melting.

For the electric steel foundry casting ingots, the core molding and cleaning departments would be omitted. The important departments to be added to the list are those for handling ingot molds, pouring and removing the ingots.

Let us show by a simple calculation how spreading overhead for the factory as a whole instead of by departments gives dangerously incorrect costs. Assume the not uncommon case of two foundries operated by

a single concern, one doing all hand molding with no machine or crane equipment, the other all machine work with two cranes.

For hand molding the expense should be distributed on the productive labor dollar or the man hour; for the machine molding the distribution should be on the machine hour basis.

Incorrect Overhead Calculation Illustrated

If for the hand molding the labor cost is 80 cents an hour and the expense rate 100 per cent of the labor, the labor and expense cost for a casting, taking one hour to make, will be \$1.60.

Suppose that five of these same castings can be made on the machine in one hour. If the machine hour rate is \$4.65 for all of the expenses and the direct labor cost \$1.75 per hour, the total labor and expense cost for five castings is \$6.40 or \$1.28 each. These are the correct methods of figuring the costs for each case.

Suppose, however, that the two shops lump their overhead and find that it is 150 per cent on the productive labor dollar. The cost for the hand molding by this method would seem to be: Direct molding labor per casting 80 cents plus 150 per cent overhead, giving a cost per casting of \$2. This increases the apparent cost per casting by 40 cents because the first foundry is made to carry a part of the burden of the other which it should not be compelled to do. This incorrectly high cost may result in losing considerable business to foundries which know their real costs. Using this incorrect method in the machine molding will give an apparent cost per casting of 80 cents, which is 40 cents per casting less than the real cost, because part of the expense of this foundry is loaded upon the other. This may result in considerable unprofitable business flowing in as a result of the low price.

Gathering the overhead expense by departments does more than merely to make certain that the expense will be distributed to the various castings in the proper proportion. For one thing it makes it possible to tie in the costs with the general books of account, which cannot be done accurately when expense is lumped for the plant as a whole.

This method also reduces the bookkeeping greatly, for instead of a multitude of ledger accounts only a single one—manufacturing expense—is needed. The expense analyses for all of the departments, taken together, give a complete analysis of the controlling ledger account. At the same time they provide a definite control of efficiency.

There are, however, besides the items of expense which come from the manufacturing expense account, certain fixed charges that are part of the overhead expense. They are taxes, insurance and depreciation.

To gather these items the fixed charge sheet form 5 is used. The purpose of this form is to provide a means by which each department of the plant may be charged with its fair share of the fixed charges. Since taxes and insurance are paid at infrequent intervals, one-twelfth of the charge is carried to the expense analysis monthly.

So much has been written about rates of depreciation and the necessity for reflecting depreciation in the costs that we shall not stress the point here. The important thing about fixed charges is to make sure that each department bears all, but no more, of its fixed charges based upon the value of buildings and equipment which it contains. How this is done will be evident from a careful study of the fixed charge sheet, form 5.

Not all of the departments in the plant do productive work in getting out the casting. Such departments as the power department, which are called contributory departments, serve the productive departments, but the expense of them must ultimately get into the final cost of every casting made. Plainly it is not feasible to measure directly the amount of power which each casting has used. But we can measure closely the amount of power each productive department uses. So the expense of each contributory department is passed on to the productive departments in the proportion that each productive department

benefits from the service of the contributory department. Ultimately the productive departments absorb all of the expense of all of the contributory departments. And at last the total expense of the productive departments is absorbed by the castings. This, in brief, is the principle underlying the departmental expense analysis method of spreading overhead.

It has been found, however, that by drawing up the expense analyses in proper form they can be made to give information on operations which is invaluable as a means to control the manufacturing, to spot inefficiencies, and to suggest economies.

The expense analysis sheet which is actually used in the operation of any foundry cost system, is shown as form 37. It provides columns for the current month's expense and for the expense for the period to date. This set of columns is repeated for succeed-

item by itself. Minute subdivision does not pay unless the item is so large that worthwhile economies may be effected by the closer control.

Allocating Expenses of Steam Department

The contributory department "steam" comprises the boiler room. It supplies steam for power, heating and process work. Certain departments, however, receive no direct heat; they depend upon the by-product heat from the processes. Arriving at a basis for distributing the steam expense is an excellent example of the need of engineering knowledge as a basis for accurate costing.

The foundry may be heated with live steam with the engines exhausting to atmosphere. If the boiler is used for heating only, all steam is chargeable for this purpose. If the boiler is operated at high pres-

THE ABC MFG Co				DISTRIBUTION OF FIXED CHARGES												YEAR _____					
DEPARTMENTS		BUILDINGS			BUILDING CHARGES				EQUIPMENT		EQUIPMENT CHARGES				MISCELLANEOUS CHARGES		YEARLY AMOUNTS			(A)	(B)
NO	NAME	SQUARE FEET	VALUES	PCT. TOTAL	RATE PER SQ. FT.	AMOUNT PER YEAR	SHARE PER DEPT.	SHARE PER HOUR	VALUES	PCT. TOTAL	RATE PER HOUR	AMOUNT PER YEAR	SHARE PER DEPT.	SHARE PER HOUR	AMOUNT PER YEAR	AMOUNT PER HOUR	DEPR.	TAXES	INSUR.	YEARLY TOTALS	MONTHLY TOTALS
1	STEAM	1500	31000	1.50	6.40	3.84	640	6000	6.00	6000	7.20	1200					6600	1100	1500	9200	766
2	POWER & LIGHT	2000	40000	2.00	8.00	4.80	800	8000	8.00	8000	9.60	1600					1800			10800	900
3	TOOL & MAINTENANCE	1000	20000	1.00	4.00	2.40	400	4000	4.00	4000	4.80	800					600			5800	483
4	PATTERN SHOP	1000	30000	1.50	6.00	3.60	600	5000	5.00											6000	500
5	GENERAL OFFICE	500	10000	.50	2.00	1.20	200	3000												3200	267
6	GENERAL FACTORY	2000	40000	2.00	8.00	4.80	800	8000												10800	900
7	GENERAL FOUNDRY	1000	20000	1.00	4.00	2.40	400	4000												5200	433
8	MELTING	1000	20000	1.00	4.00	2.40	400	4000												5200	433
9	CORE ROOM	500	10000	.50	2.00	1.20	200	3000												2600	217
10	MOULDING	3000	60000	3.00	12.00	7.20	1200	12000												20000	1667
11	CLEANING	500	10000	.50	2.00	1.20	200	3000												2600	217
12	ANNEALING																			1000	83
13	MACHINE SHOP																			2000	167
14	PACKING & SHIPPING																			500	42
TOTAL		10000	200000	100%	6.00	12000	12000	10000	10000	100%	10000	12000	12000				12000	3000	6000	25600	2133
KEY TO TOTALS AND ACCOUNTS																MONTHLY TOTALS					
																C 4000 3000 6000 25600					
																D 11600 3000 500 19600					
																E					
																JOURNAL ENTRIES					
																ACCOUNTS		DR.	CR.		
																MANUFACT. EXPENSE		11600			
																RESERVE FOR DEPR.			11600		
																MANUFACT. EXPENSE		3000			
																TAXES			3000		
																MANUFACT. EXPENSE		3000			
																INSURANCE			3000		
																TOTAL		19600	19600		
																ITEMS IN COLUMN (B) ARE ONE-TWELFTH OF THE ITEMS IN COLUMN (A)					
																TOTALS (D) ARE ONE-TWELFTH OF THE TOTALS (C)					
																THE AMOUNTS (D) ARE CREDITED MONTHLY TO THEIR RESPECTIVE					
																ACCOUNTS AND THE SUM OF THESE ITEMS \$196.00 IS DEBITED					
																TO THE MANUFACTURING EXPENSE ACCOUNT					
																(SEE MONTHLY JOURNAL ENTRIES (E))					

ment depends upon the cubical contents, the exposed wall, glass surface and type of construction. If the buildings are so constructed that the volume of each department is in fairly uniform proportion to the floor space, and the type of construction of all buildings is the same, the floor space may be used as a basis of distribution, considering, of course, those departments which do not require direct heating. An alternative method is to use the square feet of radiation and thus arrive at a percentage basis. No hard and fast rule can be laid down. The method to be used must be decided upon after a thorough examination of the heating installation and in conjunction with all other equipment which makes use of steam. The one chosen must be the one which will be most accurate.

Usually the power house requires, in addition to the 6 per cent of steam for power, about 4 per cent for heat, making a total of 10 per cent chargeable to power and light. By some one of the possible methods it will be decided how much steam is used by the other departments. Let us say that they have been found to be as follows:

No.	Department	Per Cent	Amount
2	Power and light	10	\$39.40
3	Tool and maintenance	8	31.52
4	Pattern shop	10	39.40
5	General office	8	31.52
6	General factory	8	31.52

In that way the total expense of the steam department for the month—\$393.98—is charged to the proper departments by posting the correct amount on their expense analysis sheets opposite the item "Share of steam."

The proportions given may serve very well for, say, the six months ending April 30. In some of the departments during the remaining six months little or no steam may be required. It may even be advisable to set a normal consumption of steam for heating for each month.

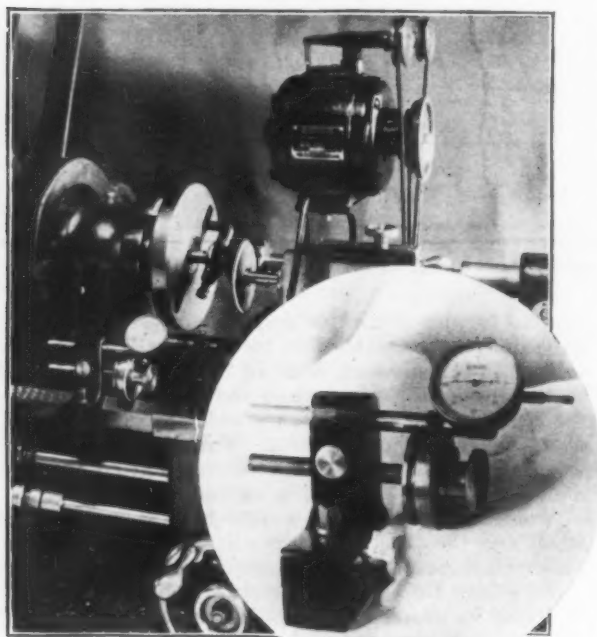
The expense analysis for the power and light department is shown as form 37-2. Power and light are used by all departments of the plant, so a basis must be found for charging each department with its share of the expense. The most accurate method is to meter the amount of current and air used by each department, but there are few foundries equipped with meters. Usually the accuracy gained by metering would not be worth the cost of the equipment in the small foundry.

A complete power test of the foundry when operating at normal capacity may be a satisfactory substitute for metering. When the horse power consumed by each department is known it is expressed as a percentage of the total horse power consumption of the entire factory and the light and power expense distributed to the departments on that basis. Since these results may soon become inaccurate with the change of manufacturing activities, it is often best—in order to avoid frequent tests—to base the departmental share of the power expense upon the power consumption rating given the various equipment and lighting units by their makers. The distribution is shown on the expense analysis of the power department.

(To be continued)

Attachment for Use in Grinding No-Pitch Hobs

A spacing indicator, designed primarily for use in the grinding of no-pitch hobs but also applicable when the accurate spacing of shoulders is required in the boring of holes difficult to measure otherwise, has been



Spacing Indicator Mounted On Lathe and Used In Grinding Of a No-Pitch Hob Having 11 Threads Per Inch. The insert shows components of the device

placed on the market by the Precision & Thread Grinder Mfg. Co., 1 South Twenty-first Street, Philadelphia.

The device, which may be clamped to the ways of any lathe, is made up of a cast-iron base and clamp, a fine pitch screw and dial which is graduated to 0.0001 in. The dial is designed so that when making the first spacing, for example, 0.016 in. and 3/10th, the operation may be repeated by simply starting at the zero point each time. A dial indicator is mounted upon a

sliding rod. The position of this is controlled by the fine pitch screw and dial above referred to.

The illustration shows the grinding of a no-pitch hob which is used for milling self-opening die-head chasers and has 11 threads per inch, spacing of 0.0909 in. being required from center to center of thread. To operate, starting at zero on the dial, revolve until the reading is 0.0909 in. The stop pin mounted on the carriage of the lathe is brought over until the needle on the dial indicator registers zero. Then release the dial on the screw and bring back to zero and repeat the operation.

The device was invented by W. H. Frick, vice-president and chief engineer of the company.

Coal Stocks at Steel Plants Show Slow Increase

WASHINGTON, July 10.—Steel plants had an average of 29 days' supply of coal on hand on June 1, 1923, while by-product coke plants had an average supply of 23 days on that date, according to a survey of commercial stocks of coal undertaken by the Bureau of the Census and the Geological Survey, under the authority of the Federal Fuel Distributor. The average of coal stocks at steel plants showed an increase of 11 per cent on June 1, when compared with March 1, the average supply on the latter day having been 26 days. The average on June 1 is made up of 27 days' supply of steam coal and 31 days' supply of gas coal. The supply on June 1 at the by-product coke plants was 12 per cent more than on March 1, when the average was 19 days. The average of 23 days on June 1 is made up of 21 days' supply of low volatile and 24 days' supply of high volatile coal.

Stocks of by-product coke increased 132 per cent during the period March 1-May 31, and the quantity on hand June 1 was 202,000 tons. In spite of this large increase the supply on June 1 was less than one-fourth that on March 1, 1922, when the reserve was heaviest.

On June 1, 1923, commercial consumers had in storage approximately 41,000,000 tons of soft coal. This was an increase over stocks on March 1, 1923, of 5,000,000 tons, and is the highest level recorded since March, 1922. Strictly comparable records for corresponding dates are not available except for June 1, 1920, when stocks were at the lowest point on record. The supply on June 1, 1923, was more than twice as large as that three years before and probably about the same as on June 1, 1921.

Institute Directors Act on Eight-Hour Day

Assure President Harding That Twelve-Hour Shift Will
Be Abolished at Earliest Time Practicable—Judge
Gary Gives His Views and Answers Questions

AT Tacoma, Wash., July 5, President Harding made public recent correspondence which he had had with Judge Elbert H. Gary, president of the board of directors of the United States Steel Corporation, in regard to the abolition of the twelve-hour day in the steel industry.

The President's letter to Judge Gary was as follows:

The White House, June 18, 1923.

My dear Judge Gary:

I have now had an opportunity of reading the full report of the commission of the Iron and Steel Institute on the question of the abolition of the twelve-hour day in the steel industry.

As I have stated before, I am of course disappointed that no conclusive arrangement was proposed for determination of what might be manifestly accepted as a practice that should be obsolete in American industry.

I still entertain the hope that these questions of social importance should be solved by action inside the industries themselves, for it is only such solutions that are consonant with American life and institutions.

I am impressed that in the reasoning of the report great weight should be attached to the fact that in the present shortage of labor it would cripple our entire prosperity if the change were abruptly made.

In the hope that this question could be disposed of I am wondering if it would not be possible for the steel industry to consider giving an understanding that before there shall be any reduction in the staff or employees of the industry through any recession of demand for steel products, or at any time when there is a surplus of labor available that then the change should be made from the two shifts to the three-shift basis.

I cannot but believe that such an undertaking would give satisfaction to the American people as a whole and would indeed establish pride and confidence in the ability of our industries themselves to solve matters where so conclusively advocated by the public.

With very cordial expression of personal regard, I am, very truly yours,

WARREN G. HARDING.

Response of the Directors

The letter from 15 of the 23 directors of the institute was as follows:

New York, June 27, 1923.

To the Honorable Warren G. Harding, President of the United States:

Dear Mr. President.—Careful consideration has been given to your letter of June 18 by the undersigned directors of the American Iron and Steel Institute, comprising all of those whose attendance could be secured at this time.

Undoubtedly there is a strong sentiment throughout the

country in favor of eliminating the twelve-hour day and this we do not underestimate. On account of this sentiment, and especially because it is in accordance with your own expressed views, we are determined to exert every effort at our command to secure in the iron and steel industry of this country a total abolition of the twelve-hour day at the earliest time practicable. This means the employment of large numbers of workmen on an eight-hour basis and all others on a basis of ten hours or less without an unjustifiable interruption to operations.

The change cannot be effected overnight. It will involve many adjustments, some of them complicated and difficult, but we think it can be brought about without undue delay when, as you state it, "there is a surplus of labor available."

The iron and steel manufacturers generally of the United States, outside of the directors referred to, are expected to concur in the conclusion reached by the directors as above stated.

With highest regards, we are cordially yours,

Elbert H. Gary, John A. Topping, W. A. Rogers, W. H. Donner, W. J. Filbert, E. A. S. Clarke, James A. Farrell, E. G. Grace, Willis L. King, James A. Burden, L. E. Block, Severn P. Ker, J. A. Campbell, A. C. Dinkey, Charles M. Schwab.
Directors, American Iron and Steel Institute.

President Harding's Remarks

President Harding in addressing the meeting at Tacoma said:

"I have received a joint communication from the large majority of steel manufacturers of America in which they have undertaken to abolish the 12-hr. day in the American steel industry at the earliest moment that the additional labor required shall be available."

Will Heal Sore in Industry

Calling the 12-hour day an "anachronism in American life," the President told the audience the steps he had taken to induce the steel industry to adopt this big reform. "I wish to congratulate the steel industry," he said, "on this important step. It will heal a sore in American industrial life which has been the cause of infinite struggle and bitterness for over a generation, and it marks an accomplishment from the conscience of industry itself, a recognition of responsibility from employer to employee that gives us faith in rightful solutions of the many tangled problems that are the concomitant of the rapid growth of America. It is an example that I trust the few other continuous processes in industry which still maintain the 12-hr. shift may rapidly follow. I shall be proud indeed if my Administration were marked by the total passing of the 12-hr. working day in American life."

Judge Gary Comments on the Manufacturers' Action

Judge Gary on Friday of last week, complying with the request of newspaper men, talked with them in regard to the correspondence with the President on the 12-hr. day. Judge Gary said that he was pleased to read in the papers that the President had given to the press letters which had passed between the President and representatives of the steel industry. "There is," said Judge Gary, "one other letter that should be referred to. That is a letter from me to the President dated June 20. Upon receiving from the President his letter dated June 18 which he has given to the press I immediately wrote to him this letter:

My dear Mr. President:

I have just received and read your letter of June 18. I will immediately call a meeting of our committee (and probably including the whole membership of the directors of the institute residing in this country). Wednesday of next week

is the earliest time that the attendance of all, or practically all, of them can be secured.

Be assured that the subject matter of your letter will be given the most careful consideration and with a spirit to cooperate with yourself to the fullest extent practicable.

With highest esteem, believe me,

Cordially yours,

ELBERT H. GARY.

June 20, 1923.

"I refer to that letter to show that there was no delay whatever in responding to the President's letter."

Judge Gary continuing, said: "The 12-hr. day was started by the men long before the United States Steel Corporation was organized. I do not believe the 12-hr. day in the steel industry could have heretofore been entirely abolished by consent of all or substantially all of the employers in that industry. Certain it is that

several and perhaps many of the employers, from the time of the President's dinner in May, 1922, have been using every reasonable effort to eliminate the 12-hr. day. And now that within 14 months practically all of the manufacturers of iron and steel in this country have positively agreed to the entire abolition of the 12-hr. day so soon as there is sufficient labor to permit it, I think we may say this is a wonderful achievement.

"Many of you here can bear witness to the fact that I have been opposed to it always, and for the reasons which have been published, and no other. Any single company or corporation could have made more rapid progress than has been made by the industry generally, but that would have been unavailing. And it has been recognized by everyone who has carefully studied the situation that in order to make an effort to eliminate the 12-hr. day successfully, there must be substantial unanimity in the whole industry. It was felt better to go slowly and go right than to go rapidly and to make the mistake of risking success.

"Just when the 12-hr. day will be substantially, and I hope entirely eliminated in the steel industry, cannot be now stated with certainty. But it can be said that efforts to get rid of the 12-hr. day will be very promptly made and that good progress will result and perfect success reached within a comparatively short time, provided the increases in the number of workmen which now seem apparent continue.

"I can't say exactly when the United States Steel Corporation or any other company will get rid of the 12-hr. day entirely, but I can positively state that they will commence to act in that direction very soon and be very diligent in their efforts.

President Very Earnest

"President Harding is and has been very earnest in his efforts to abolish the 12-hr. day in the iron and steel industry, and I am glad to see by his statement published this morning that he intends to do everything practicable to abolish the 12-hr. day in all other lines of industry. He is a very consistent and persistent President, and when he knows he is right, he is pretty strong. But he will get the full cordial support of the iron and steel industry in this undertaking.

"If you gentlemen would take the pains to read the statements which I have made from time to time, you would have a full and consistent record of our position with relation to the 12-hr. day, representing not only my own judgment but also that of my associate officers and associate members of the board of directors and finance committee of this corporation and also a substantial part of the steel industry of the United States, although not all of it. For many months, and I might say for several years, the steel industry has recognized the growing public sentiment which is quite different from what it was a few years ago; and in fact after the President's dinner one corporation I might mention brought about a reduction of the 12-hr. day to about 16 per cent throughout its whole organization, and some other companies did as well and others better. But the volume of the iron and steel business increased rapidly, the demand was very great, production was considered of high importance, and the percentage of the 12-hr. day, instead of continuing to grow smaller, began to increase, until I think on the average it is equal to about 25 per cent at the present time in this country, very much to my regret. But there will soon be an improvement in that situation, I think, because there are expected to be increases in the numbers of workmen. Men coming from the South, from Mexico, from the Philippines and Canada and from various countries abroad have already made some showing, although the present numbers of workmen are inadequate.

"We shall have some difficulty in making adjustments which will satisfy large numbers of our workmen. I mean by that that many, if not most of the foreigners who come to this country desire to work longer hours, even at the same rate per hour, and that is because by so doing they receive a larger daily allowance. We will have to make some adjustments that will be more or less expensive and possibly will result

in some reductions of the quantities produced, though I hope not much, but as stated in our letter, we are determined to get rid of the 12-hr. day at the earliest practicable moment and for the reason that the public sentiment favors that, and especially because the President so desires.

"Of course, there are some men who do not agree with the large majority and who would like to work less hours. But so far as we know there are very few workmen who are willing to work less hours unless they receive the same amount per day that they were getting for the long hours. The inferences that have been made by a few that the workmen have been ill treated in the iron and steel industry during the last few years are without substantial foundation. Also the statements that have been made, though not often, I am glad to say, that the Steel Corporation is still working its men seven days a week, are absolutely untrue so far as we at these offices know or are informed.

War-Time Experience

"During the war we were requested by governmental representatives to produce as much steel as possible and keep our mills and furnaces running night and day for the seven days a week. The necessities of the Government for military purposes justified them. But so soon as Mr. Baker, the Secretary of War, gave notice that we need not continue seven days a week, we immediately gave positive instructions to discontinue and limit the work to six days per week by any one workman, and that rule has been strictly adhered to by our corporations.

"You understand that where furnaces are continuous they have to be kept going continuously. That is the only practicable way of keeping our furnaces in condition and of securing our production. But no one employee has been requested or permitted to work more than six days a week since the war so far as our instructions go and so far as our knowledge or information extends.

"Now I am going to allow you gentlemen to ask questions, provided your questions relate to the subject matter of our meeting. I do not want to take up any other item of business on this occasion. I have not time to do it."

"What is the reason for supposing that there will be more labor available in the near future?"

"I thought I answered that. It is because the workmen are coming from the South, the colored men, and the Mexicans from Mexico and the Filipinos from the Philippines and men from Canada, and immigration is increasing a little I think. I still think, as I said before, that the laws in relation to immigration should be amended, that we should have more here to take care of the business of this country. By that I do not mean that any labor which is not desirable for this country should be permitted to come nor that the numbers permitted should be large enough to interfere with the best interests of the laboring people of this country or any other interests nor extend beyond the actual necessities of the purchasing public of this country. But I think, and that is what I have attempted to say always when I have spoken on this subject, that this country cannot afford in its own interest to prohibit a sufficient number of workmen in this country to take care of the public necessities, which means a large consuming public, and of course, also, the export trade. That, however, is a matter of opinion and not for me to decide. I understand it is in accordance with President Harding's ideas."

"Don't you think that the reduction in the number of hours will possibly draw a good deal more American labor, who are unwilling to work at the present time on the 12-hr. day?"

"I do not, certainly not."

"You speak about Mexican and Philippine labor coming in. Does the Steel Corporation employ them only as they come in or are you bringing any in?"

Judge Gary: "We are not bringing any in."

"What is the effect of the shorter working day on the cost of steel products?"

"It will increase the cost more or less. I made an estimate at the institute of about 15 per cent, and I

think that is about right. Now of course we shall do everything possible to increase the use of machinery so as to enable us to get along with fewer workmen, but we have done everything we could do in that direction up to date."

"Your figures of 60,000 additional men needed—are they approximately correct still?"

"Yes, for the whole industry."

"An increase of 15 per cent in the cost of production, that will mean an increase in cost to the consumer?"

"That is what it ought to mean, provided there is not sufficient profit without it, and I am sorry to say that for the last few years there has not been enough profit."

"Would the steel industry then go on an 8-hr. basis for the continuous operating mills or would 10 hours

still continue with some men, yard men and others?"

"Oh, yes, the continuous process works will go on an 8-hr. basis. You will notice our letter to the President was very specific."

"When the report of the committee was made public at the meeting, the inference seemed to be drawn that the committee was opposed to the abolition of the 12-hr. day?"

"Drawn by newspaper readers," replied Judge Gary. "And that was because they did not read the report carefully, that was the only reason. The report itself was very clear. I am very sorry to say that a great many wrong impressions were created in regard to that report. Our action now is entirely consistent with it."

"Your intention or the intention of the industry is to make it a straight 8-hr. day, not a basic 8-hr. day?"

"No, a straight 8-hr. day."

Washington Comment on President Harding's Announcement

WASHINGTON, July 10.—Apparently the announcement by President Harding at Tacoma, Wash., last Thursday, of the correspondence between himself and Judge Gary, regarding the total abolition of the 12-hr. day in the iron and steel industry, was intended as a climax of the Chief Executive's labor-and-capital speeches made during his Western tour. The outstanding theme of the President's addresses has dealt with the relationship between labor and capital and has denoted a sincere desire on the part of the President to bring the two more closely together. It has been pointed out that from its outset the present Administration has concentrated its efforts in this direction.

This was the purpose of the White House conference on May 18, 1922, with 48 leading iron and steel manufacturers, at which proposed abolition of the 12-hr. day was discussed. The President himself has made it manifest that this particular question is only one phase of an effort to bring about a profound change in social rather than in economic conditions in industry. The steel industry, being the largest manufacturing enterprise in the United States, evidently was selected first in the hope that if agreement could be reached with it to do away with the 12-hr. day, it would be a comparatively simple matter, if indeed it would not be almost automatic, to abolish the long work day in other industries. The President's remarks made in connection with the letter of Chairman Elbert H. Gary of the United States Steel Corporation, speaking as the head of the Committee of American Iron and Steel Institute Directors, which investigated the 12-hr. day problem, show that the President was greatly pleased with the reply to his own letter urging abolition of the 12-hr. day, when there is a surplus of labor.

Considerable interest was attached to the announcement made by Acting Secretary of Labor E. J. Henning that the substitution of an 8-hr. day would be helpful to the steel industry. It will be observed that the President, realizing the difficulties involved, has treated the matter largely from a social point of view. Mr. Henning, however, dealt with it from an economic point of view, and predicted that the 8-hr. day would reduce the overhead by speeding up production. The statement of Mr. Henning was not convincing. His contention that an 8-hr. day man can produce as much in the aggregate as he can if he works 12 hr., it is pointed out, certainly cannot be applied to blast furnaces and open-hearth furnaces, because obviously they can be charged and tapped and poured only when the heats are ready. Therefore, it has been pointed out, it is not a matter of substituting labor-saving machinery to hold down the increased cost arising from the abolition of the 12-hr. day, which Judge Gary has said will average 15 per cent and call for at least 60,000 additional employees.

Mr. Henning, referring to the surplus of labor, said he did not believe in an excess of labor, but would rather see a shortage of labor. He also declared that there is a surplus of labor now in the bituminous coal industry, and asserted that big industrial employers

could obtain employees by going to immigration centers and choosing men suited for their particular work. The latter resort, it has been explained, would provide but little help when measured against the 60,000 additional employees that will be required upon the abolition of the 12-hr. day.

Proposed Steel Rates Suspended

WASHINGTON, July 10.—The Interstate Commerce Commission last Saturday entered an order suspending from July 15 until Nov. 12 tariffs of the Lehigh Valley Railroad, which would have the effect of reducing rates on finished iron and steel products from the Pittsburgh-Buffalo territories and related points to Roanoke, Va. The commission set July 16 as the date for the hearing in this proceeding. It will come before Examiner Wagner.

This is the first supplemental order in connection with general readjustment of rates proposed on iron and steel products from territories mentioned to Virginia cities. Unlike the case of the Lehigh Valley tariff on rates to Roanoke, new tariffs provide increased rates amounting to 1½ to 6c. per 100 lbs. This is brought about by changing from a commodity rate basis to the fifth class basis. For instance, the commodity rate from Pittsburgh to Newport News is 38c. while the fifth class rate is 40½c. This readjustment is in line with the change made some time ago in putting rates on iron and steel products on the Columbus-Baltimore basis, instead of on the previous basis providing a 3c. differential under the New York rate.

Proposed increased rates on plate and sheet iron and steel in carloads from St. Louis, Peoria, Chicago and St. Paul, and points taking the same rates to points in Kansas, Nebraska and Colorado, were held not justified in a decision handed down by the Interstate Commerce Commission last Saturday. Suspended schedules proposing these increased rates were ordered canceled. Typical of the proposed increase was the advance from 72.5c. to 79.5c. per 100 lb. on sheets and plates from St. Louis to Great Bend, Dodge City and Coolidge, Kan., and La Junta, Colo.

Electric Furnace Co. Changes Hands

The Electric Furnace Co., Salem, Ohio, of which T. F. Baily was formerly president, and which went into the hands of receivers a few months ago, has been purchased by F. A. Hoiles and R. F. Benzinger, Alliance, Ohio, and F. T. Cope of Salem. The new company expects to continue to manufacture Baily electric melting furnaces for non-ferrous metals, high temperature heating furnaces, and heat-treating and annealing furnaces. The officers of the new company are: F. A. Hoiles, president; R. F. Benzinger, vice-president, secretary and sales manager, and F. T. Cope, treasurer and general manager. The officers state that the new organization is entirely a new company, adequately financed.

Steel Corporation's Orders Decrease

Unfilled business on the books of the United States Steel Corporation as of June 30 amounted to 6,386,261 tons, or 595,090 tons less than reported for May 31. During May the unfilled business showed a decrease of 307,158 and during April of 114,823 tons, while increases of 119,343 tons, 373,213 tons and 165,073 tons were shown respectively in March, February and January. A year ago the unfilled tonnage was 5,635,531 tons, or 750,730 tons less than on June 30 last. Following is the unfilled tonnage as reported by months since January, 1920:

		1923	1922	1921	1920
Jan.	31.....	6,910,776	4,241,678	7,573,164	9,285,441
Feb.	28.....	7,283,989	4,141,069	6,933,867	9,502,081
March	31.....	7,405,332	4,494,148	6,284,765	9,892,075
April	30.....	7,288,509	5,096,913	5,845,224	10,359,747
May	31.....	6,981,351	5,254,228	5,482,487	10,940,465
June	30.....	6,386,261	5,635,531	5,117,868	10,978,817
July	31.....		5,776,161	4,830,324	11,118,468
Aug.	31.....		5,950,105	4,531,926	10,805,038
Sept.	30.....		6,691,607	4,560,670	10,374,804
Oct.	31.....		6,902,287	4,286,829	9,836,852
Nov.	30.....		6,840,242	4,250,542	9,021,481
Dec.	31.....		6,745,703	4,268,414	8,148,122

The largest total of unfilled orders was on April 30, 1917, at 12,183,083 tons. The lowest was on Dec. 31, 1910, at 2,605,747 tons.

Youngstown Sheet & Tube Co. Signs with Amalgamated

It is announced that the Youngstown Sheet & Tube Co. has signed an agreement with the Amalgamated Association of Iron, Steel and Tin Workers, covering the operation of the sheet mills acquired through purchase of the Brier Hill Steel Co. The Brier Hill company has always dealt with its organized sheet mill employees through the Amalgamated association, and the Sheet & Tube company decided to continue this policy with respect to the affected Brier Hill properties.

National Enameling & Stamping Co. Operations

The National Enameling & Stamping Co., Granite City, Ill., began operations July 2 in its new plate mill, which has a capacity of 20,000 tons a month of plates up to 90 in. wide and from $\frac{1}{8}$ to $1\frac{1}{4}$ in. thick. The new mill requires 100 additional employees. George W. Niedringhaus, president of the company, said the six sheet mills and one 12-in. jobbing mill will have been completed and in operation within the next six weeks. These operations will require an addition of 600 to 700 employees. Mr. Niedringhaus also said that the company is contemplating enlarging its open-hearth department.

Waste of Gas by Beehive Ovens

WASHINGTON, July 10.—At the present time, under average conditions, the beehive coke ovens in the United States waste annually about 240 billion cubic feet of gas that could be used for public utility service, says Samuel S. Wyer, Associate in Mineral Technology, United States National Museum, in Bulletin 102, Part 8, entitled "Manufactured Gas in the Home."

Mr. Wyer continues: "Since the total annual manufactured gas sold is 326 billion cubic feet, this beehive coke oven waste is equivalent to nearly three-fourths of the gas sold. There is little wonder that the foreigner has referred to us as 'butchers' in connection with the misuse of our own resources."

"About one-half of this beehive coke oven waste, or 120 billion cubic feet annually, is wasted in the State of Pennsylvania. Since the manufactured gas used in the State is 27 billion cubic feet annually, this waste represents four and one-half times the manufactured gas made in the State."

"Much oil is now needlessly used in maintaining obsolete candle-power standards."

Of the total manufactured gas sold, 22 per cent is credited to industrial consumption, 57 per cent to domestic use, 18 per cent to lighting, the remaining 3 per cent being unclassified.

The bulletin states that the demand for natural gas is now greater than the available supply and less will be available each year. This rapid decline, it is de-

clared, will make necessary the present natural-gas-using towns ultimately using manufactured gas if they are large enough to maintain a manufactured-gas plant. Many of the appliances now in use for natural gas are declared to be so crude and grossly inefficient that they cannot be used at all with manufactured gas and this will make a marked demand for better manufactured-gas appliances.

The New Rates to the South

BIRMINGHAM, ALA., July 9.—With the refusal of the Interstate Commerce Commission to suspend the realigned commodity rates to and from the South, July 1, they went into effect, as stated in THE IRON AGE last week. The new rate on iron and steel products from Pittsburgh to Birmingham and Atlanta is 58c., compared with old rate of 69c. to Birmingham and 70½c. to Atlanta. The new rate to Mobile, Pensacola and New Orleans is 67c., compared with old rate of 51½c. The new rate to Memphis is 56c., compared with the old rate of 38½c. Birmingham's rate per ton is reduced by \$2.20, that to Atlanta is reduced by \$2.50, that to New Orleans, Pensacola and Mobile is raised \$2.10, and that to Memphis is raised \$3.50. Birmingham jobbers in wire mill products, hoop and band steel, etc., will get full benefit of the reductions, whether buying here or at Pittsburgh. Bars, structural steel and plates are sold in Birmingham on a local base, which is the equivalent of the Pittsburgh price plus about one-third of the freight rate. Bars remain quoted at 2.60c., Birmingham.

Preparation of Sponge Iron

Experimental work has been performed at the Northwest experiment station of the Bureau of Mines, Seattle, Wash., looking toward the possible use of other reducing agents than coal for the reduction of sponge iron. Results show that retort carbon and coke breeze were satisfactory as reducing agents but that from 1 to 1¼ parts by weight of these materials must be used per part of ore. In other words, although these reagents contain more carbon than coal, as much of them by weight must be used. Charcoal was found to be as satisfactory as coal from the reducing standpoint, but, on account of its low apparent specific gravity, too much of it is blown from the furnace to warrant its use as a reducing agent. The experiments proved that sawdust contained altogether too little fixed carbon and was too light in weight, so much of it being required to effect satisfactory reduction of the iron oxide that the capacity of the furnace is reduced too much to permit of its commercial operation. Hogged fuel has not been tried as yet, but it is expected that better results will be obtained with it than with either sawdust or charcoal.

Lake Ore Shipments in June

The movement of Lake Superior iron ore by water in June and for the season up to July 1 was considerably larger than that of the corresponding period in 1922. June shipments from upper lake docks amounted to 9,499,501 gross tons against 6,629,711 tons in June, 1922, an increase of 2,869,790 tons or 43.29 per cent. The total to July 1 was 16,185,482 tons or 7,834,305 tons in excess of the movement to July 1, 1922.

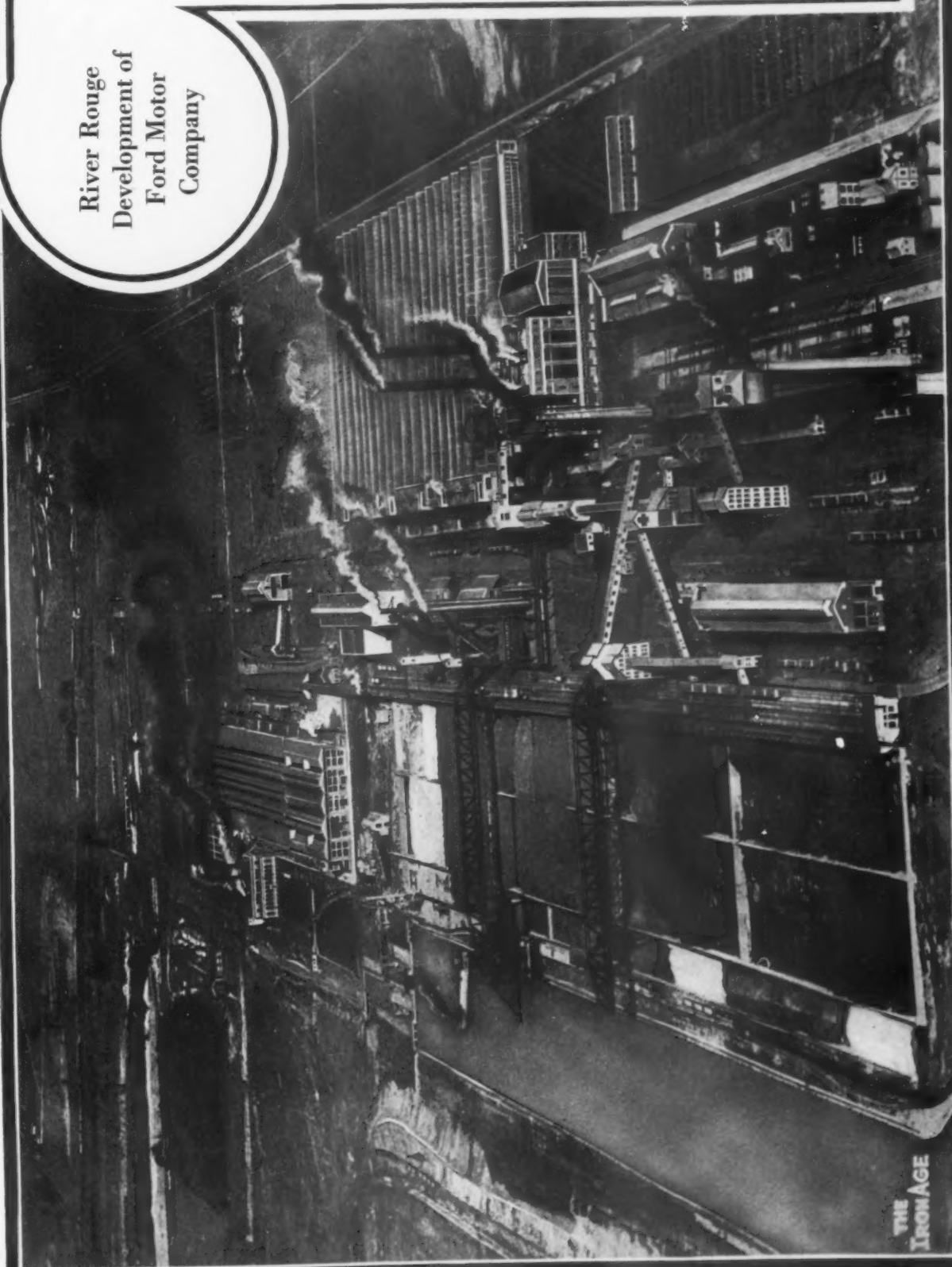
The shipments by ports for June, 1922 and 1923, and for the season were as follows:

	June, 1922		June, 1923	
	1922	1923	1922	1923
Escanaba	586,656	1,052,502	804,594	1,996,647
Marquette	324,419	513,280	394,544	801,949
Ashland	902,759	1,136,049	1,199,448	1,883,153
Superior	1,632,911	2,841,615	2,354,595	4,634,730
Duluth	2,017,801	2,846,759	2,253,863	4,874,059
Two Harbors.....	1,165,165	1,109,296	1,344,133	1,994,944
Total	6,629,711	9,499,501	8,351,177	16,185,482
Increase		2,869,790		

Duluth shipments this year have been more than in 1922 or 30.11 per cent of the total to July 1, as compared with 26.99 per cent a year ago. Escanaba and Marquette have contributed large increases also.

River Rouge Development of Ford Motor Company

ILLUSTRATIVE of the industrial marvels owing to the automobile industry, is this airplane photograph of the River Rouge development of the Ford Motor Co. Starting with the factory shown at the upper left (erected in the war to turn out the 200-ft. submarine chasers Eagles, one a day), the new integrated Ford plant is rapidly being graded out. The Eagle building is now devoted to making Ford tractors. The ore yard with its traveling bridges is clearly shown and next in order are the crusher screening and belt conveying houses for the powdered coal and coke works. In the center is the path of modern blast furnaces. Conspicuous in the picture is the notable power house of the plant, utilizing both powdered coal and blast furnace gas. The line of coke ovens may be located by the chimneys and parallel with them are the buildings for tar, ammonium sulphate and other recovered products. It is a commentary on the wide use of the automobile to mention in passing that at the lower right of the picture may be seen the many motor cars of the employees parked while they are at work. Between the ore storage and the coke ovens is a locomotive repair plant; immediately above the blast furnaces with their skip hoists is the electric steel making plant now approaching completion. Immediately above the power house, in a large area building, is the general foundry with machining departments described at some length in *The Iron Age* of Sept. 29, 1921. In the area immediately above the foundries are now in process of construction the rolling mills of the Ford Motor Co., and between this and the tractor plant is the pig casting machine



THE IRON AGE

Photograph by Fairchild Aerial Camera Corporation

OLD IRON MINES CLOSED

Work Stops at Sterlington, N. Y., Where Operations First Began in 1760

The recent closing down of the old iron mines at Sterlington, N. Y., through the surrendering of the lease by the Bethlehem Steel Co., probably means the permanent abandonment of these mines, the owner, the Sterling Iron & Railway Co., 39 Broadway, New York, having no intention of continuing operations. The mines have been flooded and the machinery dismantled.

The Sterlington mine was first opened up in 1760, being one of the oldest, if not the oldest, ore mines in the United States. It is said that ore from these mines furnished the iron from which was forged the famous chain that was placed across the Hudson River during the American Revolution to bar British warships from going up the river.

In 1906 the property on which the Sterlington mines are located was purchased by the late E. H. Harriman for his Tuxedo estate. The site consisted of 22,000 acres and of this

Mr. Harriman presented 10,000 acres to the State of New York as a part of Palisades Park. The Sterling Iron & Railway Co., the present owner of the mines, is a Harriman interest, being a subsidiary of the Merchants Shipbuilding Corporation, in which W. A. and E. R. Harriman are the principal stockholders.

In 1917 the Sterlington mines were leased to the Ramapo Ore Co., a subsidiary of the Midvale Steel & Ordnance Co. for 50 years and expensive equipment was installed for removing the ore. From the middle of 1917, when the Midvale operations began, until just recently, when operations were discontinued, 700,000 tons of ore was removed. The lease became the property of the Bethlehem Steel Co. in the sale of the Midvale properties to that company and was surrendered by the latter upon payment of a penalty which a clause of the lease provided for.

The ore reserves in the mines total about 7,000,000 tons, according to an officer of the Sterling Iron & Railway Co., but it is deemed unlikely that any further recovery of the ore will be carried on at least until such time as other ore properties, which can be mined at a lower cost, are seriously depleted. The Sterlington ore analyzes 56 per cent iron, 2.09 per cent phosphorus, 10.19 per cent silicon, 0.26 per cent manganese and 0.13 per cent sulphur.

An Old-Time Document

While preparations were under way to dismantle the old historic mine, an office was renovated at 31 Nassau Street, New York. An old document in a crude, wooden frame, once cherished by the former occupant of the office who had just died, was swept out with a pile of rubbish. Through the broken glass one could read, "Sterling Iron Works. To be Sold at Pub-

lic Auction, at the Tontine Coffee House, New York."

That was in 1815. Southfield Furnace in Orange County was then a factor of considerable importance in American iron production. With the furnace went bridge, saw mill, grist mill, cord wood and stables. There was also in the sale a "steel furnace" and Sterling Furnace, "constructed equal to any in the United States," with a "supply of water that is never-failing, being derived from a large lake." On these lands it was said, "there were many inexhaustible veins and beds of ore of excellent quality either for casting or making bar iron, and is capable of making 500 tons of castings annually." So extensive were these prop-

erties (18,500 acres) that it was necessary to locate the furnaces, shops and other important points by giving their proximity to New York in miles and by stating the compass direction from the city. Attention was directed to "250 acres of meadow for mowing" and "1000 acres of land for tillage." In the last paragraph appears a monumental statement: "From the vast quantities of timber and ore contained in these tracts, it may be fairly presumed that these iron works will be the most permanent of any in this country."

Sterling Iron Works.

TO BE SOLD,
At Public Auction, at the
Tontine Coffee House, New-York,
On the 30th day of November next, if not previously disposed of at Private Sale,
All those extensive and well-known Manufactories called STERLING IRON WORKS, consisting of the following establishments, and amounting in all to about 18,500 acres of Land, viz.

SOUTHFIELD FURNACE, situated in the town of Monroe and county of Orange, on the Turnpike road from New York to Albany about 42 miles from the former city and 14 from the latter. A turnpike road, 12 miles from the North River, with a sufficient number of houses for workmen. Also—TWO FORGES for making bar iron, about 45 miles from New-York, and 22 from the North River, in complete order, and now in operation with a complete supply of water, together with a large quantity of timber, and a large store of iron and steel.

Sterling Eagle steel which, it was said, had grown "into general use for all kinds of edge tools, saws, axes, scythes and files, . . . has been found not inferior to the most approved English or German steel. Three hundred tons of such steel may be manufactured yearly."

John W. Harrington, 31 Nassau Street, was attracted by the announcement as he passed the rubbish heap. After providing a new frame for it, Mr. Harrington asked THE IRON AGE to preserve it lest a similar fate again befall it. A section of the announcement is reproduced herewith.

Shipbuilding Declining

Total shipbuilding at the beginning of July was 316,000 gross tons less than three months ago and 410,000 tons less than at the beginning of the year, according to Lloyd's Register. The United States, which at the end of March was building 34,000 tons more of merchant ships than at the beginning of January, was building at the end of June 40,000 tons less than at the end of March. Of the 316,000 tons decrease for all countries combined in the last quarter, 154,000 tons was in the shipyards of Great Britain and Ireland, so that the British decrease was almost as great as that for all other nations together.

The following table shows, in gross register tons, the comparison between the two last quarters:

	June 30	March 31
Great Britain and Ireland.	1,337,759	1,492,128
United States	133,660	173,762
Other countries	1,072,437	1,194,172
World total.....	2,543,856	2,860,072

Direct-Reading Tachoscope

The accuracy of a speed indicator combined with the rapid reading rate usually associated only with tachometers of the centrifugal or magnetic types is claimed for the direct-reading tachoscope illustrated, which has been placed on the market by O. Zernickow, 15 Park Row, New York.

The instrument is a combined non-magnetic chronometer and revolution counter which shows the r.p.m. or ft. per min. speed in 6 sec. The standard time unit adopted is 6 sec., this unit being controlled by the precision watch movement fitted in the indicator. One and one-half seconds are allowed for starting and stopping the watch movement, which also automatically



Direct-Reading Tachoscope. The instrument is a combined non-magnetic chronometer and revolution counter and indicates r.p.m. or ft. per min. speeds in 6 sec. Accuracy and rapid reading are features. It is designed for speeds up to 30,000 r.p.m. The diameter of the dial is 2 in.

switches the counting mechanism in and out at the start and finish of the 6 sec. reading unit.

The lever with the button which projects from the case winds the watch mechanism. A single pressing of the button for each reading is sufficient, and the lever is designed to zero the counting mechanism from the previous readings, as well as winding the watch. This obviates the necessity of resetting the counter after taking a test, the last reading remaining on the dial until the indicator has been placed in position on the machine under test and a new reading required. Then the finger is pressed on the knob and permitted to slide over it so that it can fly back to its full extent, thus resetting the counter and winding the watch.

A black or a red disk is shown on the face of the counter, according to the direction of rotation and corresponding to that of the graduations to be used. One revolution of the large pointer equals 1000 revolutions or 333 1/3 ft. if the measuring disk is attached. One revolution of the small pointer equals 10,000 revolutions or 3333 1/3 ft. The instrument is designed for speeds up to 30,000 r.p.m., suitable pivots and bearings for this speed being provided.

The diameter of the dial is 2 in. The net weight is 6 oz. and the size of the case 4 1/2 x 3 x 1 1/4 in.

In a 32-page pamphlet Moody's Investor Service, 35 Nassau Street, New York, has presented a nationwide survey of the electrical, gas, telephone, telegraph and electric railway systems of the United States, giving a large amount of information, mainly in tabulated form, as to the amount of service rendered, the rates for that service, the number of people employed, the capitalization and its remuneration, growth of utility service generally, fuel consumption, etc. In some instances these figures are carried back through as much as 20 years, while other pieces of information cover only specific years through a relatively short range. As a reference work this pamphlet has great value.

Readjustment of Coal Rates from Southern Ohio Ordered

WASHINGTON, July 10.—The Interstate Commerce Commission in a decision last week ordered an important readjustment of rates on coal from southern Ohio and the so-called inner and outer crescent, which embraces that portion of the Appalachian region extending over Pennsylvania through western Maryland, West Virginia and southwestern Virginia, into eastern Kentucky and Tennessee, to points in the lower Peninsula of Michigan, and Elkhart and Stroh, Ind. The commission condemned the existing differentials between southern Ohio on the one hand, the inner and outer crescents on the other, the Ohio intrastate rates, and the adjustment of rates to the destinations involved. The commission's order requires the carriers not later than Sept. 27 to increase the differentials as between southern Ohio and the inner crescent to 50c. per ton by reducing the rates 10c. from the Ohio mines. It also required the railroads to increase the differential between southern Ohio and the outer crescent from 60c. to 75c. by increasing the rates 5c. per ton from the outer crescent mines.

The commission found that the rates complained of from the Ohio and crescent districts were not unreasonable but were unduly prejudicial to the complaining points and unduly preferential of Detroit to the extent that such rates exceeded those to Detroit by more than the following amounts per net ton which took into consideration the general reductions of July 1, 1922: To Jackson, Mich., 10c.; Lansing, Mich., 30c.; Elkhart, Ind., 40c.; Battle Creek and Kalamazoo, Mich., 50c.; and Grand Rapids, 65c.

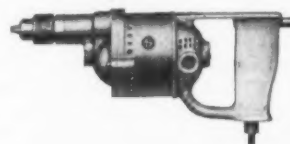
Among those participating in the case were the following iron and steel foundry interests: Albion Malleable Iron Co., McKinney Steel Co., Otis Steel Co., American Malleable Castings Association, American Rolling Mill Co., Central Steel Co., National Malleable Castings Co., and Toledo Furnace Co.

New Portable Electric Drill

A 1/4-in. electric drill, designated as the "U. S. Automatic" has been added to the line of the United States Electric Tool Co., Cincinnati.

The handle, cast integral with the aluminum body, is on a straight line with the three-jaw screw back chuck. Locating the switch lever at the extreme top of the grip is a feature which, in addition to providing the most convenient position for the operator's fore-

Locating the Switch Lever at Extreme Top of Grip Is a Feature. The motor is of the universal type. Gears are of chrome-nickel steel



finger, is intended to form a grip support when in the "on" or running position.

The motor is of the universal type for operation on direct or alternating current circuits. S. K. F. ball bearings are used, and gears are of chrome-nickel steel, hardened, and run in grease. The weight of the machine is 5 1/4 lb. and the size 10 x 4 in. A length of cable and a one-piece swivel attachment plug are regularly provided.

The machine may be converted into a grinder by using the company's bench base, arbor and wheel, and may be mounted on a drilling stand or post bracket to form a bench drill or bracket drill, respectively.

The new coke and by-product plant of the Weirton Steel Co., Weirton, W. Va., went into operation at midnight July 5, and the first coke was drawn July 6. The plant consists of 37 improved type Koppers ovens, and has a carbonizing capacity of 1000 tons of coal daily. A complete line of by-products will be produced.

Electric Capstan for Spotting Cars

The electric capstan car puller illustrated, for use in "spotting" or locating cars to be loaded or unloaded and requiring but one man to operate, has been placed on the market by the Gifford-Wood Co., Hudson, N. Y.

In applying the device a rope is attached to the car to be pulled, given a few turns around the capstan head, and the switch is thrown. The free end of the rope is pulled in gently as it comes off. The machine may be located at any convenient point along the siding and the rope may be led off in any direction.

The rope speed is 44 ft. per min., and the pull on the rope is 2630 lb. Tractive effort of 15 lb. per ton on smooth level track is considered conservative, on which basis 175 tons is said to be pulled, two loaded cars of 75 tons total weight each or seven empty cars of 25 tons each. On grades, tractive effort per ton increases 20 lb. for each 1 per cent grade.

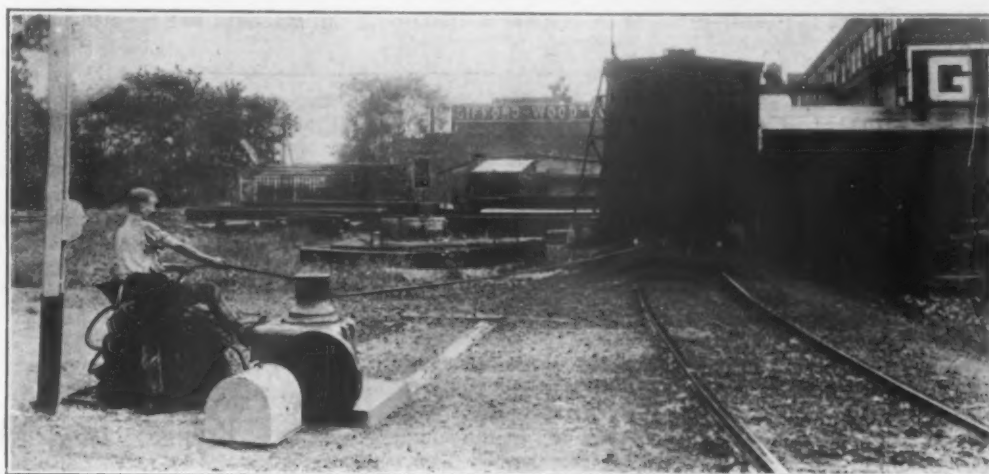
The housing is of cast iron and incloses bevel gears and a pair of cut spur gears. Bearings are babbitted and have grease cup lubrication and bronze thrust col-

center by the height of the blocks. As this increase in reach was not sufficient to place the tool in the correct cutting position, close to the transverse center line of the hole, the tool holder was turned in the bar until the tool was presented to the work at a point about midway between the two center lines. The feed mechanism of the machine was connected from the feed box to the end of the rail through suitable transfer links.

Rustless Iron Being Made in Sweden

Announcement is made that rustless iron is being produced in Sweden by a process invented by a Swedish metallurgist, which, it is said, brings the cost of the finished product down approximately to that of ordinary commercial mild steel when account is taken of the exceptional strength and durability of the new material, whereby lighter gages can be used, and of the saving of the expense of rust-resisting coverings. According to the *London Ironmonger*, the process is electrical and the iron is claimed to be impervious to

Electric Capstan for Spotting Cars. The rope speed is 44 ft. per min. and pull on the rope 2630 lb. The tractive effort is 15 lb. per ton on smooth level track; on grades tractive effort per ton increases 20 lb. for each 1 per cent grade. A 5-hp. 1200 r.p.m. motor is required.



lars are provided on the vertical shaft. Accessibility is a feature. The housing is split and bolted together as shown, and the upper section with capstan and bevel gear may be lifted off, exposing all working parts. The base is held down by five bolts. The space occupied is 2 ft. 8 in. x 2 ft. 9 in., additional room being required for gear guard and motor housings.

The machine is shipped as a unit, less the motor and rope which are furnished by the user. A 5-hp. 1200-r.p.m. motor is recommended. The drive is direct, as shown, or a pulley may be provided in place of the outside gear for belt drive.

Extension Blocks on Boring Mill

The extension type of vertical boring and turning mill, in which the housings may be adjusted back from the table on parallel ways, is of course commonly known. By the adjustment of the housings work of larger diameter than the table may readily be turned or faced. This type of machine will not, however, bore a hub or other comparatively small hole in the center of such a large casting, as the machine heads will not extend over the center. To take care of this situation manufacturers of these machines are prepared to furnish a boring arm, which is mounted on a saddle on the rail, extending out over the center of the table at right angles to the face of the rail, and carrying an additional head for boring.

Such an extra on this type of machine is expensive where the amount of work calling for boring is limited in quantity. An example was recently encountered where the use of the extra equipment was avoided and the work handled satisfactorily by a very simple and inexpensive arrangement. The rail was removed from the housings and two extension blocks mounted, one on each housing, and bolted in place. The rail was then remounted on the front of the extension blocks, thereby being advanced nearer to the table

rust and corrosion by means of acid and corrosive liquids and to be an economical substitute for mild steel. The name of the company is given as the Ferrolegering A. B., Trolhattan, Sweden. This company is stated to have been manufacturing ferrochromium and other alloys since 1913.

Neumann Bands in Steel

F. B. Foley, metallurgist of the Bureau of Mines, is investigating the occurrence of Neumann bands in specimens of mild steel subjected to impact by explosion. The disks of steel were placed on a lead block at varying distances from 50 gm. of 60 per cent straight nitroglycerin dynamite, at the explosives laboratory of the Bureau of Mines at Pittsburgh, and suspended vertically above the block and specimen. The effect of the explosion was to cup the steel disk and make a depression in the lead blocks; this effect grew less as the distance was increased. Microscopic examination at Rolla, Mo., showed that there was a decrease in Neumann bands as the distances between specimens and the explosive were increased. Photomicrographs have been taken. The specimens are now being prepared for running solubility tests in weak acids, in an attempt to discover whether or not the occurrence of Neumann bands affects the solubility of the metal.

A tablet in memory of Lucius J. Knowles, late president Crompton & Knowles Loom Works, Worcester, Mass., who died in London, in November, 1920, was unveiled July 4 at the Knowles Recreation Park. Approximately 3000 employees and members of their families, friends and guests witnessed the exercises. Lucius J. Knowles, son of Mr. Knowles, unveiled the tablet and John F. Tinsley, general manager of the works, delivered an address. Mr. Knowles was a leader in the textile machinery industry.

STEEL BUILDING STANDARD

Specification of American Institute of Steel Construction for Design, Fabrication and Erection

Standard specifications for structural steel for buildings, as adopted by the American Institute of Steel Construction, 1052 Leader-News Building, Cleveland, have been made available in pamphlet form and may be had at 25 cents a copy on application to the institute.

The institute has undertaken the development of a uniform practice in the design, fabrication and erection of structural steel. "Present conditions," according to the institute, "involve numerous code standards which make it impossible for engineers and architects to work in various cities on the same basis, and where no codes exist, it is difficult to obtain competitive quotations on a uniform base. Lack of standardization causes unnecessarily higher prices to the purchaser of steel.

"To correct these conditions, we have selected a committee from the leading talent to prepare a stand-

ard specification on the design, fabrication and erection of structural steel for buildings. They have been selected from the academic, architectural and the engineering professions, and have no direct financial connections with the steel industry."

They are George F. Swain, professor of civil engineering, Harvard University; Milo S. Ketchum, dean of the college of engineering, and director of the engineering experiment station of the University of Illinois; E. R. Graham, of Graham, Anderson, Probst & White, architects, Chicago; W. J. Thomas, chief engineer, George B. Post & Sons, architects, New York, and Wilbur J. Watson, president, Watson Engineering Co., Cleveland.

The specifications cover allowable stresses, rivets and bolts and rivet spacing and workmanship, painting, erection and inspection. Charts accompany the specification to serve in lieu of calculating the allowable stresses in compression of columns, in bending as of compression flanges laterally unsupported and in shearing as of web stiffeners. Material allowable must conform to the specifications of the American Society for Testing Materials, and as an appendix the A. S. T. M. standard has been incorporated in the pamphlet.

MORE COMMON LABOR

Supply in Pennsylvania Mills Increases—Skilled Workers Still in Demand

HARRISBURG, PA., July 10.—The end of the widespread shortage of common labor in Pennsylvania iron and steel mills has begun to appear, according to the semi-monthly labor report of the Pennsylvania Department of Labor and Industry for the period ending July 1. This is particularly noticeable in the eastern section of the State, which reports a "widespread change has developed during the past week in the common labor situation." The demand and supply have been virtually equalized in the central section of the State, but in the western part a slight shortage continues.

Erie has found a noticeable decrease in the demand for help. Not many are being laid off, but few shops are adding workers. Skilled workers are in demand there, but there are enough semi-skilled men.

The supply of skilled workers in the Harrisburg district is retarding production somewhat. Virtually all kinds of employees except common labor are in demand. Johnstown reports its metal industries working at capacity, although short of several hundred workers for all classes of duty.

An influx of workers of the skilled and semi-skilled type from other States is reported in the McKeesport district. The men, according to the report, expect to get more money for the same class of work in this district than they have been getting elsewhere.

Automobile mechanics are in special demand in the Philadelphia district. Coremakers and molders are in heavy demand. Able-bodied and intelligent men willing to learn machine molding can be placed readily. Night workers particularly are needed.

2,024,054 Automobiles Built in Six Months

Estimating the June production at 375,000, *Automotive Industries* places the total output for the year to date at 2,024,054 vehicles, of which 1,823,648 represents pleasure cars and 200,406 represents trucks. June provided the largest number of trucks, with an estimated total of 44,000, compared with 42,983 for May. Both May and April exceeded the estimated June production of passenger cars, the figures being 331,000 for June, 350,180 for May and 344,474 for April. These three months showed larger totals than any other month in the history of the industry. The production of the Ford Motor Co. is placed at 171,000 cars and trucks in June.

Except in 1920 and in 1922 no full calendar year showed as great a production of cars as has the first

half of the present year. The largest previous half year was the second half of 1922, with 1,428,062 cars and trucks. The present half year's record exceeds that figure by 41.7 per cent.

The reduction of 4 per cent in June is considered a seasonal slump which became more pronounced as the month progressed. It had been anticipated that it would come in May, but heavy demand kept record production up to record figures until the middle of June.

Bounty Provision Applied to Imports of Some Products from Australia

WASHINGTON, July 10.—Application of the so-called bounty section of the Fordney-McCumber tariff act on imports of fencing wire, galvanized sheets, traction engines and wire netting coming either directly or indirectly from Australia is ordered in a Treasury decision announced yesterday. Pending certain information on the details of a bounty allowed by the Australian Government for the manufacture in Australia of these products, the Treasury Department is withholding the issuance of a declaration under the bounty section. Meanwhile collectors of customs have been instructed to assess the estimated additional duty equal to the bounty on these products, and to suspend liquidation of the entries until further instruction is given.

In the decision the Treasury states that it has received from the Department of State a copy of the Australian iron and steel products bounty act of 1922 which authorizes the Governor General of Australia to pay a bounty on these products when made in that country and delivered from the plants there on or after Sept. 4, 1922. The bounty provided on fencing wire combustion engines, the bounty ranges from £40 per tractor for those of 12 to 18 brake hp. to £70 per tractor for those of more than 35 brake hp. On other and galvanized sheets is £3 8s. per ton. On internal types of traction engines rates are to be fixed after an inquiry by the Australian Tariff Board and are to be based on the relative cost of production of internal engines.

Tractors are being used in increasing numbers in the mahogany industry of British Honduras. Those timberlands close to the water having been stripped, more modern methods of logging are now required. A large mahogany contractor in Honduras has invested nearly \$100,000 in American-made tractors during the present season. Two British companies are making larger use of tractors in conjunction with logging railroads.

United States Production of Steel Ingots

Monthly Figures of Total Output Based on Institute
Figures for the Year—Daily Output Calculated
Month by Month Since 1917

IN THE IRON AGE of July 13, 1922, page 71, appears the first extended presentation of the month by month ingot production figures of the United States, worked out on the basis of average production

regular monthly reports have shown the production of 30 companies ever since the beginning of 1918. There was a lapse of four months—the last four of 1919—due to the steel strike of that year, during which period reports were not obtained.

Publication last week in THE IRON AGE, page 21, of the total ingot figures for last year, makes it possible to translate the output of the 30 companies as reported month by month into the total ingot production of the country, on the assumption that the 84.23 per cent of the total, which these companies produced during the year, was a uniform percentage throughout the year. This assumption, of course, is purely arbitrary, because of the deviations from month to month which must have occurred. Nevertheless it is the best approach to the exact fact which it is possible to obtain, and hence may be relied upon as correct within a very small modicum of error.

Because this is, at the best, a close approximation, the daily tonnages are expressed with two final ciphers, and they may be taken confidently as probably correct within that margin.

Extending the same ratio between the output of the 30 companies and the output of all companies into the first six months of 1923, we get a further set of figures, as carried in the table. It is almost certain that, when the total figures for 1923 become available, these estimates will have to be modified. Until such time, however, they again represent the best approximation which it is possible to obtain, and cannot be far from the fact.

	Reported Tonnage	Apparent Total	Working Days	Gross Tons per Day
1917 (a)	†	43,619,200*	311	140,255
1918 (b)	35,922,291	43,051,022*	311	138,425
1919 (c)	†	33,694,795*	311	108,343
1920 (d)	34,432,252	40,881,392*	312	131,030
1921 (e)	16,826,946	19,224,084*	311	61,814
1922 (f)				
January	1,593,482	1,891,856	26	72,800
February	1,745,022	2,071,772	24	86,300
March	2,370,751	2,814,667	27	104,200
April	2,444,513	2,902,240	25	116,100
May	2,711,141	3,218,794	27	119,200
June	2,634,477	3,127,774	26	120,300
July	2,487,104	2,952,806	25	118,100
August	2,214,582	2,629,256	27	97,400
September	2,373,779	2,818,262	26	108,400
October	2,872,415	3,410,266	26	131,200
November	2,889,297	3,430,309	26	131,900
December	2,779,890	3,300,416	25	132,000
Year	29,116,453	34,568,418*	310	111,511
1923 (g)				
January	3,644,629	3,822,369	27	141,600
February	3,294,264	3,454,918	24	144,000
March	3,858,675	4,046,854	27	149,900
April	3,760,997	3,944,412	25	157,800
May	4,000,695	4,195,800(h)	27	155,400
June	3,574,567	3,748,890	26	144,200
6 months... ..	22,133,827	23,213,243	156	148,800

*Official total, reported by American Iron and Steel Institute.

†Reports began with figures for June, 1917.

‡No reports made for last four months, because of steel strike.

(a)—29 companies produced 85.25 per cent of the total.

(b)—30 companies produced 83.44 per cent of the total.

(c)—30 companies produced 85.12 per cent of the total.

(d)—30 companies produced 84.21 per cent of the total.

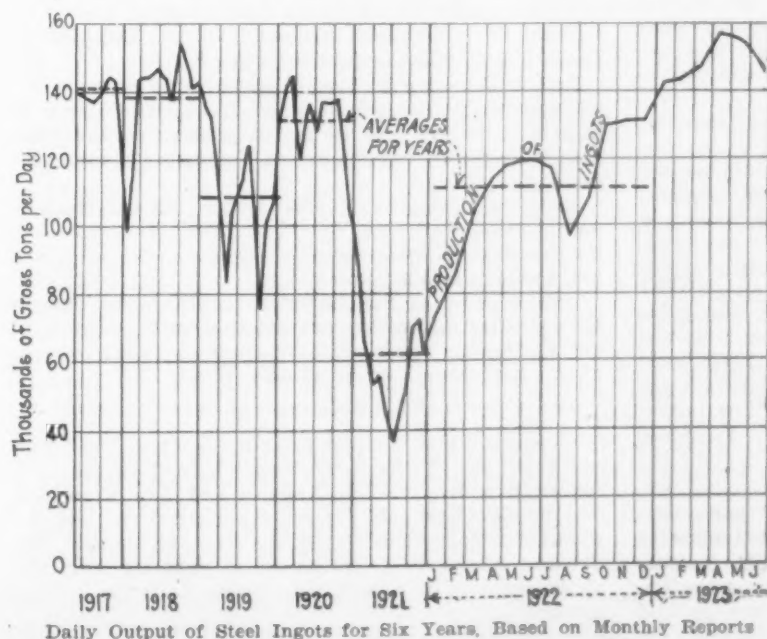
(e)—30 companies produced 87.53 per cent of the total.

(f)—30 companies produced 84.23 per cent of the total.

(g)—Estimates for 1923 are on the basis of reports from companies which, in 1922, furnished 95.35 per cent of the total ingot production.

(h)—The highest monthly and daily figures on record.

per day and covering the period from June, 1917, when the American Iron and Steel Institute first published its returns from a limited number of reporting companies. The 29 companies giving their figures in 1917 have been augmented by one, so that the institute's



Daily Output of Steel Ingots for Six Years, Based on Monthly Reports

German Steel Exports and Imports for First Quarter

German exports of iron and steel for the first quarter of 1923, according to a recent issue of *Stahl und Eisen*, were 590,723 metric tons. There has been a constant decline this year, the January exports having been 236,709 tons; the February, 209,965 tons, and the March, 144,049 tons; the March figures are stated to be incomplete because of the Ruhr occupation. Bars, beams and hoops constituted the largest exports of the first quarter at 86,363 tons, with plates and sheets next at 67,478 tons. Wire, rails and blooms, billets and sheet bars have also been heavy.

Imports of iron and steel for the first quarter are returned as 496,379 tons. Those in January were 100,907 tons; in February, 288,267 tons, and in March, 107,205 tons. The largest single item in the first quarter was 122,074 tons of bars, beams and hoops, and the second was 119,304 tons of scrap. Other large items of importation are rails, plates and sheets, blooms, billets and sheet bars. Pig iron importations were 81,214 tons for the quarter. An interesting item is 115,625 tons of coke imported during the first quarter, as compared with only 3235 tons in the first quarter of 1922.

The Shea-Whelpley Construction Co., 407 National Building, Cleveland, organized to engage in contracting work, will specialize in blast furnace, open-hearth and rolling mill masonry construction. P. C. Shea becomes president and E. G. Whelpley, vice-president.

BOOK REVIEWS

Elementary Machine Shop Practice. By the Committee on Industrial Education of the National Metal Trades Association. Pages 118, 5¼ x 7½ in., illustrated. Published by the National Metal Trades Association, 1021 Peoples Gas Building, Chicago.

This volume, prepared on request of the association's membership, following the publication a year ago of the manual on "Apprenticeship in the Metal Trades" is intended to assist in teaching the machinists' trade and to aid those who desire to enter this field of activity. It is not an exhaustive treatise, and is for use where the instructor can demonstrate on the actual machine. Lathe and planer work have received the most attention.

Factors involved in taking up the machinists' trade and the nature and opportunities of this vocation are outlined in the introduction. A chapter on the engine lathe takes up briefly the laying out of work, lathe centers and tool holders, and another on cutting tools includes paragraphs on rake and clearance, the grinding of lathe tools and speeds and feeds. Several pages are devoted to basic lathe operations, and screw threads and thread cutting, including figuring of change gearing and operation of the carriage. A chapter on chuck work outlines the kinds and care of lathe chucks, machine work in a chuck, the use of the steady rest and follower rest. The planer, its construction and operation, and elemental planing operations are taken up in several pages and a chapter on milling machine work outlines the construction of machines of various types, milling cutters and various milling operations. Indexing, compound and differential, is included. Drilling machines and drilling, the shaper, and bench and vise work are subjects of other chapters.

The illustrations are line cuts and each machine is shown in clear outline and its various parts numbered. A bibliography on each subject is given at the end of chapters and a general bibliography at the end of the book. The volume is well arranged, simplified and concise, and may well be recommended for use in connection with apprenticeship courses.

Metal Statistics, 1923. Pages 512, 4 x 6 in. Published by the American Metal Market and Daily Iron and Steel Report, 81 Fulton Street, New York. Price \$1.00.

Edited by C. S. J. Trench and B. E. V. Luty, this volume has the characteristics of its long line of predecessors, this being the sixteenth edition. As with previous editions, it is full of statistics of the metal industries of the United States and of the world, covering both production and price figures, in some cases over a long period of years. Imports and exports of metals and metallic products are also given in some detail.

As a handy compendium of information, this annual volume is looked for in many offices, as it contains in convenient form a large amount of information not elsewhere gathered together in the same compass. Each succeeding volume adds to the prestige already built up and naturally adds to the value of the book, because of the greater accumulation of data and the greater completeness of its presentation.

Pig iron prices from 1799 (charcoal); anthracite foundry iron from 1845; Bessemer iron from 1886 and other grades from 1891; iron rails from 1847; steel rails from 1870; billets from 1890; steel rods from 1887; tank plates from 1892 and shapes from 1894—these indicate the value of the work as a reference volume.

"Service to the Central Station Industry" is the title of a notable volume recently issued by the Associated Sangamo Electric Companies, Springfield, Ill. Its purpose, as stated in the foreword, is "to trace the development of the central station industry in a general

way and establish the importance of electric meters to the industry." The first part of the book is devoted to a brief history of electrical science, from William Gilbert, who experimented with static electricity in the latter part of the sixteenth century, down to Faraday, Ferraris and Gramme in the nineteenth, showing briefly what the leading electrical experimenters contributed to the science. The text, which is presented in an unusually readable and artistic form, is supplemented by excellent plates of Gilbert, Galvani, Volta, Ampere, Ohm, Davy, Joule, Faraday and Maxwell. The second part of the book traces the history of the central station itself. Brief summaries of the development of arc lighting, incandescent lighting, the electric motor, transmission, the transformer, and a more detailed history of the meter, show how each of these branches of the science helped make the central station possible. Especially interesting is the description of the first central station, built on Pearl Street, New York, by Thomas A. Edison, and opened on Sept. 4, 1882. There follow ten pages of photographs of the interior and exterior of the Sangamo plant at Springfield.

New Books Received

Estimating the Cost of Buildings. By Arthur W. Joslin. Pages 228, 6 x 9 in.; illustrated. Published by the U. P. C. Book Co., Inc., 239 West Thirty-ninth Street, New York. Price, \$2.

The Electrical Handling of Materials. Volume IV, Machinery and Methods. By H. H. Broughton. Pages 334, 8 x 10½ in.; 279 illustrations. Published by Messrs. Benn Brothers, Ltd., 8, Bouverie Street, London, E. C. 4, England.

Bulletin of Georgia School of Technology. Catalog 1922-1924 and Announcements 1923-1924. Pages 204, 6 x 9 in. Published by the Georgia School of Technology, Atlanta, Ga.

Youngstown Plants Resume After Fourth of July Holiday

YOUNGSTOWN, July 10.—Industrial operations in both the Mahoning and Shenango Valleys resumed this week, following the general suspensions over Independence Day. Sheet mill production was still considerably below normal this week, as a number of Valley interests suspended July 1 for two weeks, for overhauling and repairs.

Plants of the Newton Steel Co. and the Mahoning Valley Steel Co. are still inactive. Half of the sheet mills at the Niles works of the Republic Iron & Steel Co. have resumed.

The Trumbull Steel Co. reports operation of its sheet and tin plate departments at from 75 to 80 per cent., and other departments on a normal basis. A number of open-hearth furnaces of the Youngstown Sheet & Tube Co. are cold for repairs.

In the Mahoning Valley, all blast furnaces are pouring except the Hannah stack of the Republic Iron & Steel Co., banked due to the suspension of the company's Bessemer department at Youngstown, for overhauling.

The A. M. Byers Co., Pittsburgh, started the bar mill at its Girard plant during the week and increased the number of active puddle furnaces, but its plate mill remains on the inactive list.

Sheet mills at the Haselton plant of the Sharon Steel Hoop Co. largely resumed this week. Throughout the Valley, sheet operations are curtailed because of the heat engulfing the Middle West.

Gustave Kahn, general sales manager of the Truscon Steel Co., Youngstown, has returned to his desk following a visit to Los Angeles and San Francisco. The Pacific Coast has not yet experienced the letdown in building operations felt in the East, he states. The Truscon company is operating at capacity and will likely continue at a high rate, owing to large unfilled demand.

LARGE PIPE PRODUCTION

Cast Iron Makes New Record and Shops Are Very Busy This Year

Statistics compiled by the American Iron and Steel Institute show that the production of pipes and tubes

PRODUCTION OF WROUGHT PIPE AND BOILER TUBES, SHOWING IRON AND STEEL SEPARATELY, 1921-1922.

Kinds of pipe.	1921—Gross tons.			1922—Gross tons.		
	Iron.	Steel.	Total.	Iron.	Steel.	Total.
Black, standard.....	45,337	685,459	730,796	87,154	973,906	1,061,060
Galvanized.....	20,937	246,122	267,059	30,852	359,288	390,140
Oil country goods.....	29,026	862,969	891,995	33,223	1,106,611	1,139,834
O. D. and misc.....	104	40,355	40,459	62	66,713	66,775
Boiler tubes.....	14,880	42,244	57,133	19,944	54,483	74,427
Total.....	110,293	1,877,149	1,987,442	171,235	2,561,001	2,732,236

In 1922 there were 25 active works, of which 19 made black, 14 made galvanized, 15 made oil country goods, 11 made O. D. and miscellaneous pipe, and 9 made boiler tubes.

PRODUCTION OF SEAMLESS STEEL TUBES, GROSS TONS, 1913-1922.

Years.	Hot finished.	Cold drawn.	Total.	Years.	Hot finished.	Cold drawn.	Total.
1913.....	42,740	65,827	108,567	1918....	142,306	150,586	292,894
1914.....	36,939	53,656	90,595	1919....	75,964	121,505	197,369
1915.....	63,488	76,180	139,668	1920....	132,091	159,479	291,570
1916.....	61,235	129,238	190,473	1921....	59,663	58,221	117,884
1917.....	57,615	139,060	226,675	1922....	120,652	137,183	257,835

PRODUCTION OF CAST-IRON PIPE AND FITTINGS, NET TONS.

Years	Gas and water.*	Soil and plumbers.	Total.	Years.	Gas and water.*	Soil and plumbers.	Total.
1913.....	1,010,016	256,229	1,266,245	1918....	508,300	111,373	619,673
1914.....	938,297	222,483	1,160,780	1919....	514,664	195,417	710,081
1915.....	956,372	258,498	1,214,870	1920....	636,862	249,633	886,515
1916.....	934,626	279,707	1,214,333	1921....	564,138	230,092	794,230
1917.....	748,173	250,928	999,101	1922....	926,577	356,872	1,283,449

*Includes culvert pipe. Manufacturers able to separate their production report 17,645 tons of culvert pipe and fittings in 1922 and 11,317 tons in 1921.

for 1922 was very heavy. The production of wrought pipe and boiler tubes was 2,732,236 gross tons, the

largest tonnage on record with the exception of that for 1920, when 3,002,725 tons was produced.

The production of seamless steel tubes for 1922 was 257,835 tons, which had been exceeded only by the years 1920 and 1918 when the tonnages were respectively 291,570 and 292,894.

The production of cast iron pipe and fittings made a new record, the tonnage being 1,283,449, compared with only 794,230 in 1921, while the previous record was in 1913, when the production was 1,266,245 net tons. Cast iron pipe shops have been extremely busy this year and a leading manufacturer estimates that the production for the first half of this year has been fully 40 per cent larger than that for the same period last year.

Synthetic Gray Iron for Castings

Carburization tests to determine the feasibility of making synthetic gray iron in an indirect-arc rocking-type electric furnace have been made at Detroit by engineers of the Bureau of Mines. The results were very gratifying, an excellent quality of gray cast iron being produced in every test. The carbon content of the metal was under control. With this type of furnace it was found best to mix some gray iron scrap with the steel scrap in order to get the melting started at a lower initial temperature, and thus avoid overheating the roof. Test bars 1½ in. in diameter were made and broken on 12-in. centers. Deflections as high as 3.65 deg. and breaking strengths of 3000 lb. were obtained. On the evidence of these tests an inspector for one of the large automobile plants in Detroit placed a large order for castings specifying electric furnace iron and agreeing to pay a premium therefor.

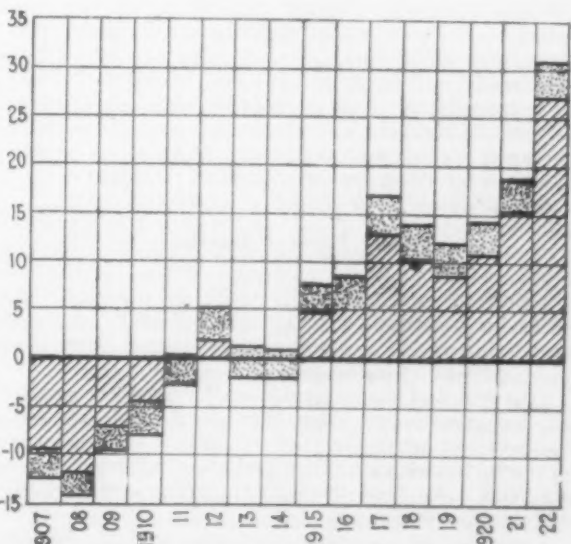
The newspaper reports indicating immediate construction of a new structural steel mill for the Algoma Steel Corporation, Sault Ste. Marie, Ont., are erroneous, according to a statement issued by A. Taylor, secretary of the company, who further stated that the project will not be under way for about six months. Financial arrangements in connection with the undertaking have not been completed.

Relation of Steel Production to Pig Iron Output

IN the chart will be found the year-by-year ratios, from 1907 to 1922, inclusive, of the steel ingot and casting production of the United States and the pig iron production. The diagram shows in no uncertain fashion how steel production has overtaken and passed the pig iron figures, in spite of an occasional setback. But more particularly it shows the very great excess of steel in 1922, due largely to the coal strike of that year, which made fuel for the production of iron scarce and forced the steel makers to use an exceptionally large proportion of scrap.

Two lines across the space devoted to each year indicate the ingots (lower line) and the combined ingots and castings (upper line). Thus, in 1922, the ingot tonnage alone exceeded the pig iron tonnage by 27 per cent, while the combined output of ingots and castings exceeded the pig iron figure by 30.8 per cent. Thus the space between the two horizontal lines represents the tonnage of castings as a percentage of the year's pig iron tonnage.

Except for 1912, no year prior to 1915 showed an ingot output as great as that of pig iron. Beginning with 1915, however, ingots have exceeded pig iron in a rapidly increasing ratio. In the four years, 1911 to 1914, inclusive, the total steel output—ingots plus castings—exceeded the pig iron output. Prior to 1911, however, even the addition of the castings to the ingots failed to bring the figure up to that of pig iron.



In 1922 Total Steel Production Exceeded Pig Iron Production by More Than 30 Per Cent, While Ingot Tonnage Alone Was 27 Per Cent Above Pig Iron Tonnage. The chart traces these two ratios for sixteen years. For the first half of 1923 these ratios have fallen heavily, being about 14 per cent for all steel and 10.5 per cent for ingots alone

THINGS WRONG IN INDUSTRY

Need of Attention to Ascertaining the One Best Way to Do Work

From a thought-provoking address made by Dr. Frank B. Gilbreth, consulting engineer of Montclair, N. J., before the graduating class of the Babson Institute, Wellesley Hills, Mass., June 18, have been taken the following epigrammatic extracts which will serve to focus attention on a thesis which has repeatedly been advanced by Dr. Gilbreth, namely that there is one best way to do work. The Wellesley Hills address was intended particularly to establish the topic of the "one best way for executives." Doctor Gilbreth speaks on the authority of twenty-seven years' practice, both as a construction engineer and contractor and also as a consulting engineer devoted particularly to management.

You will live to see a revolution in the methods of executives. No such changes have ever been made in several generations as you will see in your generation.

You will find that the antiquated apprentice system still exists in many of the great trades, although it is acknowledged that the journeymen teachers, while having more craft knowledge and craft skill than their employers, really know so little of their trades that any earnest student of motion study can make astonishing improvements in their methods.

You will find that trades can be and have been taught in one-fifth to one-tenth of the time now usually required, and that trade schools near this city are now proposing to prolong further the period of apprenticeship.

There are no records of the trades showing the one best way to do work that an ambitious youth may study during his periods of leisure or of unavoidable delay. His consultant and last word of authority is the biased and ignorant journeyman to whom he has been assigned as pupil.

So-Called Monotonous Work

You will find that many of our best magazines are ever ready to open their columns to writers who are without actual personal experience, who will describe the monotony that accompanies working under standardized conditions, which, as a matter of fact, affects only a worker who is capable of handling a grade of work above the type at which he is working.

You are supposed to disseminate information to counteract such illogical influences and conditions. You are supposed to know that there are all types of bodies and minds, and that there are many people who prefer to fill the jobs ordinarily considered to be monotonous, and comparatively few who desire to take the responsibility that accompanies the jobs that require planning before performance or new decisions constantly during performance. *There is no problem of monotony when one works at the highest type of work for which he is fitted.*

White Painted Interiors

You will find it the exception instead of the rule to paint all workrooms as white as possible. You will find a general belief that light reflected from white paint is too strong for the eyes, yet it can never equal the brightness of outdoors.

You will find that executives everywhere generalize and decide with too little data on the subject under consideration, and the percentage of organizations that have memonically classified their information and data, and have filed them so that they are instantly available, is very small.

You will find many concerns, who, with the honesty of ignorance, will agree upon time study rates which they "will never cut unless the method is changed," and who will then entirely omit the recording of the method which is timed.

You will find that the general practice is to guess instead of to measure.

You will find that relative merit and efficiency are seldom properly evaluated, due to the absence of individual records of performance. You will find better

individual records of daily efficiency of cows on a dairy farm than you will find of workers in many organizations too large for the personal touch.

You will find little general recognition of the high cost of unnecessary fatigue, which has been conceded by experts to amount to more than 20 cents per day per worker. You should ever bear in mind that the costs from unnecessary fatigue become a part of the high cost of living and are borne by the entire public.

You will find that one of the chief causes of low outputs per worker is the failure of executives to furnish workers with the right materials, in the right conditions, at the right time and in the right quantity. The same condition prevails in causing low records of sales in our great retail stores. Conditions are so bad that they would be reformed at once if it were not for the fact that an organization is fairly safe if it is as efficient as its competitors.

Carnegie Steel Co. Issues New Card of Extras in Steel Bars and Small Shapes

Carnegie Steel Co. has issued, under date of July 1, a new card of extras on steel bars and small shapes, superseding its old card dated July 15, 1919. This old card, except for minor revisions, had been operative since 1908, and the steep increases shown are due to the fact that there has been a very heavy increase in costs, notably of labor, since it was compiled. The new card is the result of an exhaustive investigation into costs covering a long period and aims to help manufacturers to avoid losses entailed in the old list of extras.

While it is estimated that the average increase, as compared with the old card, is about \$2 a ton, due to the fact that approximately 50 per cent of the tonnage is of the base sizes, carrying no extras, it is a fact that individual extras show large increases in several instances. This is particularly true of round, square and hexagon bars of 5/16-in. and smaller, which show increases of \$7 to \$15 a ton over the old extras. The minimum increase in size extras is \$1 a ton. Quantity extras have been increased \$1 to \$3 a ton, and there now is a charge of \$1 a ton for cutting other than by machine for lengths over 5 ft. Formerly there was no charge for cutting to that length. Charges for cutting other lengths have been advanced \$1 to \$2 a ton.

The new card probably will be adopted by other producers.

The new and old extras on rounds and squares and on hexagons are shown in the following table:

Rounds and Squares

	New	Old
Base	Base	Base
3/8 to 3 1/8 in.	.10c.	.05c.
3/8 in.	.15c.	.10c.†
1/2 in.	.20c.	.25c.††
5/8 in.	.30c.	.20c.
3/4 in.	.40c.	.25c.
7/8 in.	.55c.	.30c.
1 in.	.70c.	.35c.
1 1/8 in.	.85c.	.40c.
1 1/4 in.	1.00c.	.50c.
1 3/8 in.	1.25c.	.75c.
1 1/2 in.	1.50c.	1.00c.
1 3/4 in.	2.00c.	1.25c.
2 in.	.10c.	.075c.
2 1/8 in.	.15c.	.125c.
2 1/4 in.	.25c.	.15c.
2 3/8 in.	.35c.	.20c.
2 1/2 in.	.45c.	.25c.
2 3/4 in.	.55c.	.375c.
3 in.	.65c.	.50c.
3 1/8 in.	.75c.	.625c.

Hexagons

3/8 to 3 1/8 in.	.25c.	.15c.*
3/8 in.	.40c.	.25c.
1/2 in.	.60c.	.35c.
5/8 in.	.80c.	.55c.
3/4 in.	1.00c.	.65c.
7/8 in.	1.20c.	.75c.
1 in.	1.50c.	1.00c.

† 1/2 to 3/8 in.
†† 3/8 in.
* 3/8 to 3 in.

The Fort Worth & Denver Railroad Co., Childress, Tex., is increasing the working force at its local car and locomotive shops.

Competitive Position of Colorado Mills

Trade Practices in Grain and Live Stock Markets Described in Hearing of Basing Point Complaint—Witnesses Testify to Shortage of Western Mill Production

IS the present position of the Colorado Fuel & Iron Co. in the steel trade analogous to that of the Chicago district mills under the Pittsburgh basing point practice? This question was brought to mind by the testimony of J. F. Welborn, president of the Colorado company, before the Federal Trade Commission at Chicago last week. His company's sales policy, he said, was to undertake to find out the delivered prices from other producing centers and thereupon to quote a price which would meet or beat that of competitors at points of consumption. In a steady market, trade paper quotations have been a reliable source of information, he commented, particularly in the last few years. In a weak market, he asserted, there are times when advice from buyers was more reliable as to low prices which were being quoted. In selling merchant bars, the situation has been complicated, especially in the last two years, by the existence of several independent price bases. Sometimes it has proved necessary to meet the delivered price from Chicago mills, at other times from Pittsburgh mills and then again from Birmingham producers. In making sales west of Pueblo, competition in merchant bars has to be met at Salt Lake, Los Angeles, San Francisco and Seattle. In fact, he added, his company has been practically eliminated from competition on the Pacific Coast by the producers at the points mentioned.

Policy as to Wire Products

In wire products the situation is less complicated. In this case, a Pittsburgh base is generally adhered to, and the distance which the Colorado mill is willing to go east in making sales is determined by the amount of freight it must sacrifice. It was apparent from Mr. Welborn's testimony that the net price obtained at the mills on these products varies greatly. To illustrate, a sale of wire nails at the plant doors would probably be made at a price approximating the Pittsburgh base price plus the full freight from Pittsburgh to Pueblo. In making sales east of Pueblo, the net price at the mill would steadily diminish as the freight from Pueblo to destination increased and the freight from Pittsburgh decreased. Mr. Welborn did not state whether sales were ever made at prices which would net the mill less than the quoted prices at Pittsburgh. He did assert, however, that his company supplied jobbers with wire and nails as far east as the interior of Nebraska, Kansas and Oklahoma. He also pointed out that his company met water competition on wire and nails on the Pacific Coast, but he did not explain to what extent the prices of these commodities when delivered by water on the coast differed from the Pittsburgh base prices plus the all-rail freight.

Mr. Welborn threw new light on the merchandising of rails when he declared that his company generally obtained a small differential on this product over the f.o.b. mill prices at Chicago and other points east of his plant.

Customers in Other Industries

In an effort to show that the method of selling steel has been a natural, normal economic development, not differing materially from merchandising practices in other industries, counsel for the United States Steel Corporation put on three witnesses to recount conditions in the live stock, hay and grain markets. The witnesses were G. E. Marcey, president, the Armour Grain Co., Chicago; Thomas W. Jerrems, Standard Live Stock Commission Co., Chicago, and George S. Bridge, a hay commission man, Chicago. In general, the tenor of this testimony was that prices for live stock, grain and hay are established by purchases

and sales at Chicago, and that the net prices obtained by producers was equivalent to the Chicago market prices, minus the freight and handling charges. Objections raised by the commission attorneys, and sustained by the examiner, were on the ground that the testimony was irrelevant because it dealt with conditions in an entirely different industry and that furthermore there is no analogy between the sales methods in the produce and steel industry because, in the former case, an actual freight is paid by the seller, whereas in the latter instance an imaginary freight is frequently paid by the buyer. The examiner also pointed out that it was not competent to show that a practice existing in one industry was similar to those in others because a statute which would correct a practice in one instance would also apply to similar practices wherever found. As has been his custom in the case, however, the examiner admitted the testimony, taking note of the objections.

Influence of Panama Canal Traffic

In developing that portion of its case having to do with consumption in the Chicago district, counsel for the Steel Corporation introduced interesting testimony showing the effect of the Panama Canal on Chicago mills. Murray N. Billings, assistant traffic manager, Illinois Steel Co., and assistant Western traffic manager, Universal Portland Cement Co., Chicago, testified that there was practically no movement by water to the Pacific Coast between 1914 and 1920 because of slides in the Panama Canal and the withdrawal of vessels from coast-to-coast trade during the world war. This cessation of ocean shipping put steel competition on an all-rail freight basis, with the result that Chicago mills were able to obtain a larger net price at their mills for steel shipped to the Pacific Coast than their competitors east of them. As a result, domestic shipments from the Illinois Steel Co. to the coast materially increased during those years, reaching a peak of 178,000 tons in 1918. Before the close of 1920, however, ships returned to the intercoastal trade and water rates dropped materially, with the consequence that Chicago mills were largely eliminated from competition on the Pacific Coast. In 1922, in fact, domestic shipments from the Illinois Steel Co. to the coast totaled only 1400 tons. The purpose of this testimony apparently was to establish that during the years of the suspension of traffic through the Panama Canal, the Pacific Coast was a part of Chicago mill territory and should be considered as such in computing the consumption in that territory in relation to production.

Mr. Mills Tells of Great Demand

The remainder of the hearing during the week was devoted largely to the filing of steel production and consumption figures by Western mills and buyers, and to the taking of testimony to show that during the past year and a half Western users have been forced to purchase part of their requirements from mills east of Chicago, owing to the shortage of production by Western mills. Edwin S. Mills, general manager of sales, Illinois Steel Co., Chicago, testified as to the ability of his company to make deliveries from the last quarter of 1922 up to the present time. Beginning toward the latter part of 1922, he said, the demand for steel became so great that it exceeded the capacity of the company, and a great many customers were obliged to look elsewhere for tonnage, and that condition has practically obtained down to the present time. He related how his company had allocated among its customers what tonnage it was able to produce under the handicap of a fuel shortage, but called attention to

the fact that buyers were forced to obtain part of their needs from mills east of Chicago. He cited the Railway Steel Spring Co., with large plants in Chicago and St. Louis, which found it necessary to purchase in excess of 1000 tons of steel a month from Carnegie Steel Co. The great lengths to which the Illinois Steel Co. went in order to maintain production was indicated when Mr. Mills stated that during the last four months pig iron had been shipped from the Pittsburgh district to his company's plant.

Chicago Production Inadequate

C. A. Irwin, president, the Milwaukee Rolling Mill Co., Milwaukee, Wis., testified that his organization was able to obtain only 60 per cent of its sheet bars during 1922 and 1923 from Chicago mills. Under cross-examination it was brought out that out of the remaining 40 per cent the Milwaukee company was only able to get 10 per cent from sources east of Chicago. Throughout their cross-questioning attorneys for the commission attempted to demonstrate that mills east of Chicago were practically as heavily booked as those in the Chicago district, and that if Eastern mills were able to furnish part of the deficiency in supply in the Western market, it was due to the fact that they were less severely crippled by the fuel shortage.

T. Hansen, director of purchases, A. O. Smith Corporation, Milwaukee, Wis., testified that between Aug. 1, 1922, and March 1, 1923, the company used 100,000 tons of plates and hot-rolled strip. Of this amount 22,750 tons, mainly hot-rolled strip, were purchased from mills east of Chicago. All of the plates used were bought in the Chicago district except 2000 tons obtained from the Carnegie Steel Co.

Frank B. Baker, supply agent, Pullman Co., Chicago, stated that his organization had used 90,000 tons of plates, shapes and bars during the first six months

of 1923, and that of this total 2700 tons, part of it Bethlehem special shapes, was bought from mills east of Chicago.

James E. MacMurray, president, Acme Steel Goods Co., Chicago, testified that he used about 70,000 tons annually of small billets, 1½-in. square x 30 ft. long. During the last two or three years he has been forced to purchase more than half of his requirements outside of Chicago, owing to inability to obtain full deliveries against contracts with local mills.

In most cases the witnesses testified that the delivered prices on steel bought from mills east of Chicago were higher than those on steel purchased from Western sources.

Uses of Alloy Steel

John Brunner, manager, department metallurgy and inspection, Illinois Steel Co., described the company's facilities for making electric alloy steel and recounted the uses for different kinds of alloy steel.

Fred W. Waterman, manager, Gary Tube Co., Gary, Ind., testified that his plant, which is now under construction, will be completed in about a year. He stated that it was the aim to start the first mills in September, 1924. The works will have a capacity of about 34,000 tons of tubular goods per month, requiring from 45,000 to 55,000 tons of skelp. These figures, he pointed out, were computed at 87 per cent of theoretical capacity.

The hearing at Chicago was adjourned on Friday, July 6, and proceedings will be resumed at Washington on July 16, when the Steel Corporation will introduce summaries of Western consumption and production figures, with the possibility that it will offer additional testimony as to the methods of selling products in other industries. The attorneys for the commission expect to proceed with their rebuttal at Washington Aug. 6.

Demurrage Rules in Ore Shipments Held Not Unreasonable

WASHINGTON, July 10.—Holding that demurrage rules governing shipments of iron ore and other commodities frozen in transit were not unreasonable, the Interstate Commerce Commission last week dismissed the complaint of the Cambria Steel Co. et al, vs. the Director General, Pennsylvania Railroad et al. The complainants included the Cambria Steel Co., Johnstown, Pa., the Midvale Steel & Ordnance Co., the Alan Wood Iron & Steel Co., the E. & G. Brooke Iron Co., and the Birdsboro Steel Foundry & Machine Co. They had asked an extension of the 96-hr. free time on frozen shipments provided by the present rule. No number of days was suggested but attention was called to the free time of five days on coal shipped to tide-water. The companies criticized the present rule because it permits but one credit, even though a car is released within 24 hours, and asked that credits be allowed at the rate of one credit for each day of free time remaining after unloading. They also asked that the rule be amended to provide for no uncancellable debits on any car. The steel companies had challenged the reasonableness of rules and regulations in effect since Dec. 1, 1916, and also claimed that prior to Dec. 1, 1919, the rules and regulations were not plainly stated.

Large Production of Coal Tar in 1922

WASHINGTON, July 10.—Preliminary figures of the Geological Survey indicate that the production of coal tar and by-products from the by-product coke industry during the year 1922 was the greatest in the history of the industry. This statement is carried in the annual report on "Census of Dyes and other Synthetic Organic Chemicals" for the calendar year 1922, which the United States Tariff Commission has just sent to press. Production of the by-product coke was about

28,500,000 tons, which exceeded the production of both beehive and by-product coke during the previous year.

The production of tar is greatly in excess of the requirements of the dye and coal tar chemical industries. A large amount of the tar is burned and of the remaining portion refined only a part is purified to such final products as benzene, toluene, naphthalene and anthracene, owing to the strong demand for partly refined product, motor fuel, solvents, soft pitches and the like.

Puddlers' Wages Advanced

Puddlers in mid-western mills will receive an advance of \$1.76 per ton for the July-August period, as compared with the tonnage rates paid in May and June, as a result of the bi-monthly settlement conducted at Youngstown. The new rate will be \$13.88, whereas \$12.12 was paid the past two months.

Examination of sales sheets covering shipments of bar iron for the 60-day period ending June 20 disclosed an average price of 2.50c. per lb., comparing with 2.35c., the average two months ago. In addition to the three-point advance as a result of the increase in the average selling price of bar iron, the base rate is increased \$1, under terms of the new wage agreement reached between employers and employees at the recent conference in Atlantic City.

In consequence of the examination, finishing operatives will be advanced 7½ per cent for the ensuing two-months period.

Directly as the result of the failure of a radical taxation program in the State Legislature of Wisconsin, the Green Bay Foundry & Machine Co., Green Bay, Wis., on July 2 posted this notice in its plant: "Effective immediately, the wages of all employees of this company are increased from 10 to 25 per cent."

FOR GRINDING TRACK WORK

One Machine for Webs of Manganese Track Castings and Other for Tops

The costly method generally employed in the finishing of manganese castings incorporated in crossovers and other track work has brought forth the development of two new grinding machines for this work.

These machines are being made by the Automatic Machine Co., Bridgeport, Conn. The first, built some time ago, is for grinding the web of the manganese casting to conform to the web of the tee head or girder rail, so that fish plates may seat securely. This machine has increased production four times, beside turning out work with the web ground flat instead of wavy, as is more or less the contour of the rough casting.

The machine consists essentially of a column and table and a wheel head, which latter is mounted on an 8 in. square ram. In general appearance it resembles

somewhat a draw cut shaper used on locomotive cylinders and similar work. On the front end of the ram, which has a reciprocal motion, is mounted a compound saddle giving both cross and vertical adjustment. This saddle carries the wheel spindle, which is driven by belt from a motor on the rear end of the ram. The reciprocal motion is attained by a planer type drive. Work is mounted on a table which has vertical adjustment to accommodate different heights of work.

This first machine indirectly suggested the possibilities for the second, which has recently been completed and is designed for finishing off the tops of the manganese castings after the crossover has been completely assembled, making them flush with the rail head.

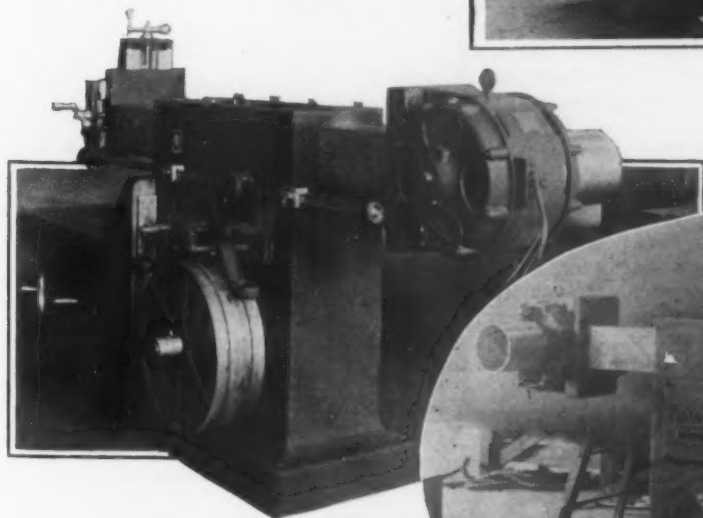
The operation of this machine may best be understood by starting with a description of the foundation.



To Facilitate Faster Cutting the Grinder Used for Surfacing Manganese Castings In Crossings Is Provided With Two Wheels. The control is centralized at the operator's position for adjustment of heads and traverse mechanism. A rail built of flats guards against damage from counterweights in event of cable breakage. Ball bearings are provided throughout



Manganese Rail Castings Are Ground to Conform to Rail Section Contour on Machine with Vertical and Horizontal Adjustment to Wheel Head Which Has Individual Motor Drive (Below)



An Individual Drive Is Provided for Traversing Ram on Which Are Mounted the Wheel Head and Motor for Driving It (Above)



I-beams are set in pairs in concrete, forming tee slots for bolting the work securely. In the concrete are also set two rails to carry the machine, one carrying a rack for the traversing of the grinder. The rail carrying the rack is finished on the tread only. The other rail is finished on top and both sides of the head.

The carriage of the grinding machine is a hood-shaped casting to which is mounted the arm bearing the grinding mechanism. Underneath this hood is the traversing mechanism driven by a motor mounted on top of the hood. The traverse bull gear is located near one corner close to one of the four load carrying wheels and receives its motion through a train from a worm and a worm wheel, the worm being on the driven shaft turned by belt from the motor. The worm is of steel, the wheel of cast iron, and they operate in an oil tight case. All other gears are of steel. Reversal is accomplished by a plate cam similar to that in a planer drive. The load carrying wheels on the four corners are chilled iron, ground. On the side of the hood opposite the bull gear are four guide rolls, two placed on each side of the wheels. These rolls are of tool steel and bear on the finished sides of the second rail as guides for the machine.

The arm carrying the grinder mechanism is a box casting about 6 ft. long by 14 in. sq., with ways machined on four sides. On this arm are mounted two saddles, one on each side, which carry the wheel spindles and motors for driving them. These saddles are firmly bolted together, surrounding the arm. Taper gibs are provided for taking up vertical wear. It is anticipated that lateral wear will be infinitesimal. Should any develop it may be compensated for by facing the joint between the two saddles and drawing them

closer together, thus giving the original accurate fit.

On the wheelhead saddles are compound slides, one part of each of which is adjustable by screw vertically to set the individual wheelhead for height. The screw on the other slide is connected by pinion and intermediate gear with the slide screw on the other saddle, permitting the two heads to be adjusted vertically as a unit. Both saddles are counterbalanced by cables running to weights on the far side of the traverse carriage. The reason for two wheels, which are 16 in. by 3 in., is merely for faster cutting. Wheel spindles and all other rotating parts of the machine are carried in dust protected ball bearings.

Control is centralized at the end of the arm, where the operator is entirely out of harm's way. Here is a screw for adjusting the saddles horizontally on the arm, a shaft which operates through a bevel gear set, the universal vertical adjustment mentioned above, and the traverse control mechanism. The latter consists of a dial indicating length of stroke, having cast figures by feet from 0 to 10 on each side of center, permitting a maximum stroke of 20 ft. for the machine. A circular tee slot around the figures contains two adjustable dogs which are set to the proper figures for the stroke desired. Between these dogs is a lever mounted on a shaft connected with the traverse mechanism. This lever is tripped by the dogs alternately, producing the reciprocating motion to the whole machine, or the machine may be stopped or reversed by manual operation of this lever as in a planer.

The arm is stiffened by struts to a bracket on top of the carriage and also by one to each corner of the carriage. These side struts also serve as a fence to keep the operator out of the path of the machine.

MORE RAILS FOR JAPAN

Inquiries for 10,000 Tons—Nippon Tin Plate Purchase Postponed

Quietness characterizes export business, although a slight spurt in inquiries from Japan lends some promise of recovery. Continental competition dampens all efforts to make American products attractive at the present scale of prices. The dullness in wire shorts, evident for several weeks, still prevails, although one sale of about 50 tons was made last week at \$59, c.i.f. China. An official prominent in this field believes there will be no respite until the market becomes stabilized.

Two rail inquiries have been received from independent Japanese buyers, one for 7000 tons of 75-lb. rails, the other for 3000 tons of 60-lb. rails. One exporter in New York with good connections in Japan reports improving business, stating that inquiries have been received for 12,000 boxes of tin plate, and also for several smaller quantities, including one of 300 and one of 200 boxes. Merchant business is practically nil.

It has been learned that the inquiry from the Nippon Oil Co. for 37,500 boxes of tin plate has been postponed indefinitely. The 800 tons of structural steel for the First National Bank of Osaka, which has been pending for some time, has been supplied mainly out of stock in Japan, but it is understood that a portion was placed in England. American competition in this product is handicapped by the tariff of 2.80 yen per ton. Business in copper wire is lean. There have been inquiries for bars and shapes but actual orders are negligible.

Preliminary specifications for the erection of an oil refinery in Argentina have been received. Bids will be opened Aug. 15. Parties to the Bandoeng agreement in the East Indies have dissolved the restriction on tin sales and will release stocks of fine tin accumulated in the Orient. The Government Iron Works at Yawata, Japan, has begun the manufacture of tin plate, according to local press notices forwarded to the Department of Commerce. As an adequate supply of tin has not been received, full capacity production cannot yet be undertaken. At present the Yawata product

is inferior to imported tin plate, due to an inability to turn out iron sheets of a uniform thickness without flaws or cracks.

The State of San Luis Potosi, Mexico, has granted a concession for the construction of a tramway from Rio Verde to San Ciro, State of San Luis Potosi, a distance of about 25 miles. It is planned to use cars operated by gasoline motors or similar power and to construct a telephone line which shall extend the length of the tramway. It is understood that the Canadian Pacific Railway is planning the construction of a direct outlet for the Peace River country in Northern Alberta at an approximate cost of \$30,000,000, and that survey parties are now engaged in preliminary work. According to an announcement in the Canadian Parliament, the Canadian National Railway construction program provides for a total expenditure of over \$28,000,000, this amount to be expended on work ranging from coast to coast. A decree has been signed authorizing the Secretary of Communications, Mexico, to expend the amount necessary to construct a railroad branch line from Beristain, State of Hidalgo, on the Hidalgo & Northeastern Railroad to Fobero in the State of Vera Cruz. The line is to be 140 km. in length and estimated cost is 4,000,000 pesos (approximately \$2,000,000).

Prices of foreign pig iron are still too high to attract much business on the Atlantic seaboard. However, one large importer now offers limited tonnage of French iron, equivalent to foundry No. 1, at \$29, c.i.f. Atlantic port, and iron of 2.50 to 3 per cent silicon at 50c. less. Late September delivery is offered on both grades. An importer of Scotch foundry iron is quoting about \$32 per ton, c.i.f. Atlantic port for No. 3.

Some good-sized inquiries for Caucasian and North African ore have been received but little interest is shown after quotations are noted.

The H. H. Franklin Mfg. Co., Syracuse, N. Y., manufacturer of Franklin automobiles, has reduced the working schedule at the plant from 6½ to 5 days a week. The present operating force will be maintained and there will be no reduction in the number of employees.

The Autocar Co., Ardmore, Pa., is arranging to give all of its 1600 employees a vacation with full pay.

BELGIAN MARKET HOLDS FIRM

More Blast Furnaces to Be Blown In—Export Business Better—Falling Exchange a Factor

ANTWERP, BELGIUM, June 20.—The iron and steel market has plenty of firmness. There is a well defined revival of business, both for home consumption and for export. Prices have gone generally higher and are maintained, so that we may conclude that orders, kept back during the last falling market (and there are plenty of them) will be offered now. It is generally known that some more blast furnaces will be blown in and production will become larger shortly. Most works, however, already have their share of the available orders; that is why we need not fear, unforeseen circumstances excepted, that prices may fall again in the near future.

This, however, may not be true for foreign buyers, who have also to reckon with the rate of exchange. For instance, four weeks ago we quoted 17.50 fr. for one dollar, whereas the same money is now worth 18.80 fr. In consequence the price expressed in francs may have been increased by $7\frac{1}{2}$ per cent since that time, without being higher for an American purchaser.

Rails quoted a month ago at 650 fr. equaling \$38.50, have now been offered on demand for export at 700 fr., being 50 fr. dearer. Notwithstanding this increase, they are cheaper for export business, as this price on the present rate of exchange is only about \$37.

Other materials have been sold for exportation on the basis of 630 fr. or \$34 for bar iron and for heavy beams and 700 fr. or \$37 for heavy sheets, these prices being f.o.b. at Antwerp.

Ruling prices for home consumption, per metric ton, f.o.b. works, are as follows:

Commercial iron No. 2.....	600 fr.	\$32.00
Commercial iron No. 3.....	625	33.20
Commercial iron No. 4.....	700	37.00
Heavy sheets	675	36.00
Thin sheets	950	50.50
Bars	625	33.20
Rails	620	33.00
Heavy beams	600	32.00
Open-hearth steel: Ordinary.....	600	32.00
Half hard	700	37.00
Mild	650	34.60
Special	900	48.00
Rounds	1,200	64.00
Spring steel	1,250	66.50
Thomas ingots	475	25.00
Blooms	525	28.00
Billets	575	30.60

Production for May was 166,100 tons of pig iron and 167,200 tons of steel ingots. Thirty-six furnaces were in action against 54 in the year 1913, when the total average monthly production was 207,000 tons of pig iron and 200,000 tons of steel. Besides this, 4600 tons of steel castings were produced directly from the furnaces, also about 134,000 tons finished steel and 13,500 tons finished iron. The average monthly production during 1913 was respectively about 5200 tons, 155,000 tons and 25,350 tons. The production of May has been influenced slightly by the railroad strike.

Belgian high phosphorus foundry pig iron is offered at an average price of 460 to 470 fr. rendered at consumers' works, or actually \$25. This pig iron has an analysis as follows:

Silicon.....	2.5 to 3 per cent
Sulphur.....	0.05 per cent maximum
Manganese	0.5 per cent, about
Phosphorus	1.7 per cent, about

It was offered to American importers at prices such as \$25.50, f.o.b. Antwerp. Luxemburg and Lorraine pig iron of the same grade has been offered during the last week at somewhat lower prices. These works, however, and especially the French works, have retired from the market. It seems that, seeing the prices going higher, they prefer to stock, for it is quite impossible that the purchases of the moment already have absorbed their whole production.

Export business for special Belgian foundry pig iron with lower phosphorus contents, i.e., 0.1 to 0.2 per cent, other elements nearer to American analysis, have been negotiated on prices such as 500 fr. per gross ton, f.o.b. Antwerp, which means today \$26.80 and, with the actual liner rate of freight, \$30 c.i.f. Atlantic ports and \$31.50 c.i.f. Pacific ports.

English hematite pig iron is offered at £6 to £6 2s. c.i.f. Antwerp. No important business is booked for this material just now. The rate of exchange is too high and the most part of the small orders available are placed either with Belgian or French works, whose price is about 480 to 500 fr., or about \$26.80 or £5 15s., whereas £6 for English hematite pig iron is now 515 to 520 fr. Notwithstanding the difference, some steel founders prefer to buy the higher English quality, even with the difference of price. Belgian steel pigs are sold at 420 fr. or \$22.40.

This quality of pig iron has an average analysis as follows:

Silicon	1 per cent maximum
Sulphur	0.05 per cent
Manganese	1.5 per cent
Phosphorus	1.8 to 2 per cent

Good parcels of ferrosilicon, 10 to 12 per cent, are imported into Belgium from France. And £12, delivered at consumers' works, was paid for ferrosilicon, 45 per cent, of Scandinavian origin. We may conclude that the position of the market is favorable and that there is a good prospect of business, even for export.

Coal and Coke

The coal market does not change. Producers are more and more overwhelmed with orders. Prices will therefore certainly not go down for, although the arrivals of German coal and coke from the Ruhr are more numerous, we still have to buy large quantities of English coking coals, and the price is becoming higher and higher on account of the higher rate of exchange of English money.

This may perhaps have a repercussion on future prices of coke. It is, however, already the case for patent fuel, for which the price has had to be increased on account of the higher price of English pitch, caused by the same reason. In general, prices are as reported in our previous letter and with an upward tendency.

Japanese Market

TOKIO, JAPAN, June 25.—With the recent heavy drop in the quotation for American copper, the quotation in Japan also declined by yen 10, or to yen 48 or yen 49. Consequently dealers are making efforts to export to China. During April, about 500 tons were shipped. From Osaka there was no copper ingot shipped from late in February until the end of April but at the beginning of May, exports worth about yen 8000 were shipped. As long as the American copper market remains weak and Japanese copper is quoted at yen 47 or yen 48, shipments to China are likely to continue active.

An attempt on the part of iron merchants in Japan to boycott the Yawata (Government) Foundry is reported to give the impression of an artificial scarcity and thus to get large profits from German iron, which can now be imported at low rates. The governor of the foundry is unconcerned and says that large quantities of German goods are due to arrive in this country in June, July and August on old orders.

Imported aluminum is quoted at 52 to 53 sen per lb., having risen 2 or 3 sen since the end of last month. Japanese aluminum is lower in price and is quoted at yen 4 per kamme. The *Chugai Shogyo* predicts a fall in price.

Industrial Conference in Colorado

The third annual conference on "Human Relations in Industry" is to be held under the auspices of the Y. M. C. A. at Estes Park, Colo., July 27-29. Among the papers which will be read will be the following: "World Forces Affecting American Industry," Clarence H. Howard, president Commonwealth Steel Co., St. Louis; "The Man Next to the Men," M. C. Evans, the International Harvester Co., Denver; "The Eight-Hour Day in Minnequa Works," F. E. Parks, manager Minnequa Steel Works, the Colorado Fuel & Iron Co., Pueblo.

A school for industrial and business executives will be held from July 22 to 27.

BRITISH FOREIGN TRADE

May Exports Exceed 1913 Monthly Rate—Imports Smallest This Year

Exports of iron and steel from Great Britain in May continued the expansion recorded in April. At 435,630 gross tons they are not only the largest this year, but exceeded for the first time the monthly average in 1913 of 420,757 tons. They compare with 398,507 tons in April, at that time the largest since pre-war records. Scrap is included in these figures. Imports in May were 114,134 tons, or the smallest for any month this year, comparing with 133,929 tons in April, the largest for 1923. In 1913 the imports were 195,264 tons per month.

Comparative data for both exports and imports, scrap being included, are as follows:

British Steel Exports and Imports, Gross Tons

	Exports	Imports
January, 1923.....	370,028	133,182
February.....	324,460	130,008
March.....	380,136	120,908
April.....	398,507	133,929
May.....	435,630	114,132
Average per month, 1922.....	295,980	82,215
Average per month, 1921.....	144,885	152,734
Average per month, 1920.....	274,881	128,685
Average per month, 1919.....	188,519	50,801
Average per month, 1913.....	420,757	195,264

More detailed data of the exports are as follows:

Principal British Exports, Gross Tons per Month

	1913	1922	1922-May	1923
Pig iron.....	93,700	66,159	41,888	81,215
Ferroalloys.....			15,381	11,680
Steel rails.....	42,200	21,300	13,063	19,646
Steel plates.....	11,200	6,700	4,905	17,847
Galvanized sheets.....	63,500	43,600	46,258	52,911
Steel bars, rods, etc.....	20,900	19,100	15,472	32,956
Tin plates.....	41,200	37,400	39,455	54,059
Black plates and sheets.....	11,700	18,700	20,900	38,372

Data as to importations of importance are as follows in tons per month:

	1913	1922	Jan.-May 1923
Iron ore.....	620,000	289,400	548,219
Manganese ore.....	50,100	28,109	40,522
Pig iron and ferroalloys.....	18,000	12,800	12,423

Exports of scrap iron and steel in May were 11,121 tons, or 11,653 tons per month for the first five months of this year, as compared with 12,880 tons per month in 1922. In 1913 there were 9600 tons per month.

Iron and Steel Exports

Figures of the Department of Commerce show that in the five months of calendar year ended May 31 steel rails form the largest item of iron and steel exports, amounting to 98,894 gross tons of the total of 809,397 tons. Boiler tubes and welded pipes were in second place, with 70,083 tons; steel bars coming next, with 69,488 tons. Galvanized sheets, iron and steel plates, plain structural shapes and semi-finished material followed in the order named, with other articles in lesser quantities. The main items are tabulated in gross tons.

Steel rails.....	98,894	Plain wire.....	39,220
*Rail fastenings, etc.....	15,187	*Wire nails.....	14,565
Tubes and pipe.....	70,083	*Wire rope.....	2,708
Steel bars.....	69,488	*Other wire manufac-	
*Alloy steel bars.....	633	tures.....	5,956
*Iron bars.....	8,007	Barbed wire and	
Galvanized sheets.....	56,832	fencing.....	32,780
Plates.....	55,492	Hoops, bands and	
Structural shapes.....	53,859	strips.....	17,997
*Structural, fabricated.....	29,483	Scrap.....	16,856
Semi-finished.....	53,786	Pig iron.....	11,885
*Wire rods.....	13,623	*Ferroalloys.....	3,462
Black steel sheets.....	45,940	Cast iron pipe and	
*Black iron sheets.....	5,387	fittings.....	11,431
Tin plate andterne		*Malleable iron pipe	
plate.....	45,249	fittings.....	2,881

*Not included in item next above.

B. M. O'Hara, assistant metallurgist, attached to the Mississippi Valley experiment station of the Bureau of Mines, Rolla, Mo., will undertake a study of briquettings of zinc ores prior to distillation in retorts. This study will be undertaken as the result of suggestions made at the meeting of the American Zinc Institute in May.

COPPER IN CHINA

Generally Dull Market in Both Ferrous and Non-Ferrous Metals

SHANGHAI, CHINA, June 23.—The pace of the steel and iron market in Shanghai in recent weeks has continued to be slow. Operations on the whole are considerably below previous expectations and new orders are unsatisfactory. Supplies of most metals are considered very low, but the desire to replenish is still absent, principally the result of internal disturbances and the lack of confidence in the situation.

Most of the Chinese dealers are inclined to look on. They are not disposed to take seriously the low ebb of the present stocks in Shanghai, Hankow and Tientsin. It would be interesting to watch how much improvement will come over things in general with the gradual settlement of the political troubles in various parts of the North.

The swing of business in iron and steel back to normal will be slow, but many anticipate a marked recovery by autumn. This is generally the period of the year in metals not only in Shanghai and China but in Japan and other parts of the Far East.

The demand for copper from the mints in China has received a setback. Outside of the mint in Hupoh, whose requirements at present average some thousand tons of electrolytic copper per month, the other mints seem to be out of the market now. The Hunan and Honan mints are conspicuous by their absence. The Hunan government, as is well known, is laboring under financial difficulties and, in addition to this, the political disturbances have served to restrict purchases. The Honan mint is reported to have ceased minting copper coins, while the Anking and Wuchow copper mints, as well, have suspended operations.

The Mukden mints are working, but their capacity is not known approximately. The same remark applies to the one in Canton. Supplies of the material in the hands of these mints are believed to be small.

The unfavorable rate of exchange is militating at present against a larger amount of copper being contracted by the working mints. The serious depreciation of copper coins and the fairly high price for electrolytic copper, today's rate being 15 cents f.o.b. New York, do not make for profitable business.

Very little business in either Hongkong or Straits tin is doing at the present moment. The rate in London has been ranging between £195 to £200 per ton. Stocks in Shanghai of Hongkong tin are estimated at about 700 slabs and of Straits tin some 20 tons. Buyers are holding off for lower levels. The merchants from the Shaoshing district are not showing any inclination to augment supplies.

Large quantities of pig iron have been going from China to Japan. The Japanese market is showing signs of decline. The steel market in Japan is still showing significant declines under the withering influences of the growing visible supplies. The Japanese Government Steel Works, which have been anxiously watched because of rumored intention to reduce prices, add much to the uneasiness of the market at Tokio and Osaka by reductions between 10 and 15 per cent. Large quantities of Czecho-Slovakian steel have been arriving in Japan recently and these are being felt acutely by the market there. Belgian iron has declined from yen 150 to yen 116, and there is a very uneasy feeling pervading the whole section.

The Detroit city council has authorized the awarding of the contract for four 24,000-kw. turbo-units, for the new Detroit powerplant, to the Westinghouse Electric & Mfg. Co. The cost of the new equipment is \$1,254,000.

The Wisconsin State Legislature has passed a bill appropriating \$9,900 to be used in the interests of the abolition of the Pittsburgh basing point practice in the sale of finished steel. The Wisconsin State Senate had previously killed a bill appropriating \$10,000 for the same purpose.

New Large Open-Side Planer

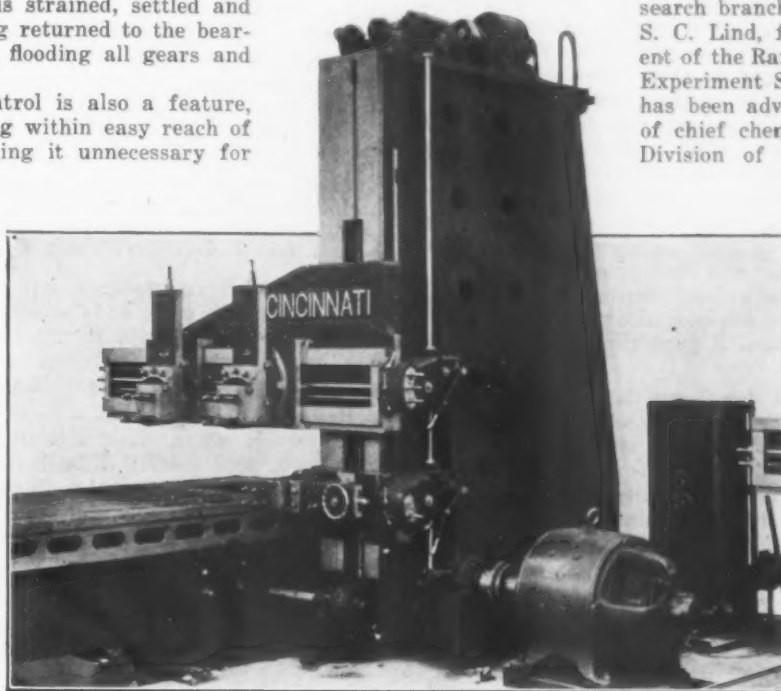
Forced lubrication to the vees and gravity lubrication of bearings in the bed are among the features of the new 72-in. open side planer recently placed on the market by the Cincinnati Planer Co., Cincinnati. The oil is strained, settled and filtered before being returned to the bearings, the clean oil flooding all gears and pinions.

Centralized control is also a feature, control levers being within easy reach of the operator, making it unnecessary for him to move out of his position except when setting up the work.

The construction of the machine may be noted from the illustration. The rail is mounted on a knee which is clamped to the column through two large T-slots. Instead of using an ordinary bolt head or short nut a sliding nut, of the same length as the bearing of the knee, is placed in the T-slot, assuring, it is said, a secure clamping surface. The bed is of box-type construction and of extra depth, which is intended to give strength where the greatest rigidity is required, and also to provide an extra long bearing for the column. The housing cheek of the bed is also of heavy construction and extends above the top of the table and a distance below the bottom of the bed, which provides greater area for bolting the column to the bed. Oil pockets cast integral with the bed are long enough to prevent oil dripping on the floor.

The table is of standard box-type construction and has inner guides which have a bearing its full length. The right-hand side of the table is provided with a clamp to prevent lifting of the table from the vees when machining work that overhangs the opposite side of the machine. The column is braced and ribbed on the inside in a manner intended to prevent distortion and in addition to being bolted and dowelled to the bed, a large tongue cast integral with the bed fits a groove in the housing and further provides against moving of the column.

The rail is equipped with a power elevating device, and screws which raise and lower the rail are provided with ball bearings. The heads have rapid power traverse in all directions and are equipped with safety crank handles to prevent accident when throwing in the rapid traverse. When engaging the rapid traverse handle, the ordinary crank handle does not move. A limit stop prevents the rail from being raised beyond its maximum height.



New 72 In. Open Side Planer. Bearings in the bed are lubricated by gravity; vees have forced lubrication. Method of clamping the knee is among the features

Changes in U. S. Bureau of Mines

WASHINGTON, July 10.—Resignation of Dr. R. B. Moore as chief chemist of the Bureau of Mines, effective July 1, has been followed by transfers and promotions of the personnel of the research branch of the bureau. Dr. S. C. Lind, formerly superintendent of the Rare and Precious Metals Experiment Station at Reno, Nev., has been advanced to the position of chief chemist and chief of the Division of Mineral Technology to succeed Dr. Moore.

During the past year G. St. J. Perrott and S. P. Kinney have conducted an intensive study of the combustibility of coke in blast furnaces. This work will hereafter be conducted by Mr. Kinney in connection with the operation of the experimental blast furnace at the North Central Experiment Station, Minneapolis, and at commercial furnaces in South Chicago, Ill., and

Youngstown, Ohio. Mr. Perrott has been transferred to the Pittsburgh Experiment Station to direct chemical-physical work in connection with the liquid oxygen explosives investigations.

Dr. T. T. Read, formerly chief of the Division of Information Service in the Washington office, has been transferred to Duluth, Minn., and made superintendent of the North Central Experiment Station. The headquarters of Dr. Read were fixed at Duluth to permit of maintaining a closer contact with the mining phase of the work. T. L. Joseph has been made assistant superintendent of the North Central Experiment Station at Minneapolis. Oscar Lee has been transferred from Minneapolis to the Southern Experiment Station, Tuscaloosa, Ala., and placed in charge of the iron ore beneficiation work under the direction of Dr. W. R. Crane, superintendent of the station. C. G. Maier, formerly with the Department of Metallurgical Research of the University of Utah, has been appointed to the position at Berkeley made vacant by Dr. Bonner's resignation. Prof. Ernest A. Hersam of the University of California, who for the past year has studied metallurgical milling problems at the Massachusetts Institute of Technology in cooperation with that institute and with the American Institute of Mining and Metallurgical Engineers, has returned to his former position as an instructor at the University of California. John Blizard, who has had charge of the bureau's fuel work at its Pittsburgh station, has resigned to accept a position with a commercial concern in New York City, where he will be engaged on the design of super-heaters and heat transfer apparatus.

Investigations on Liquid-Oxygen Explosives

Issued by the Bureau of Mines as technical paper No. 294, this volume contains 100 pages besides inserts carrying half-tones. It deals with the liquefaction of gases, their properties and tests of absorption and evaporation, as well as strength tests of explosives. There are a historical résumé of the general subject, a discussion of containers, a section devoted to the materials used and a warning as to dangers incident to the use of liquid-oxygen explosives. A comprehensive bibliography on liquid air completes the volume.

With the object of improving the export trade in Caucasian manganese ore, the Russian Soviet Government intends to amalgamate the two export organizations which are at present conducting the business—one at Poti in the Caucasus known as the Chemo, and one, the Export Buda at Kharkoff, in Southern Russia, for the ores from the Ukraine. The vessels of the Russian volunteer fleet, says the London *Ironmonger*, are to be used for carrying the ore to London with the object of saving freight.

IMPROVEMENT IN FRANCE

Increase in Orders but Not in Prices—American Coke Supplies

PARIS, FRANCE, June 29.—The iron and steel trade has been reversed since about the beginning of June, with an increase in the volume of orders. Prices, however, have not yet begun to move upward and a few occasional concessions on prices, counterbalanced by no less occasional increases, are even to be noted. It is generally believed that some improvement will take place in prices during the second half of August, at the latest, when business generally becomes active. Of course, if the adjusted price of coke were lowered as from Aug. 1, as there is some question of it, this would be reflected by the iron and steel prices.

The rise of the dollar and sterling is facilitating French exports and we are now able to make to Great Britain offers that stand a good chance of being accepted.

Coke.—The Société des Cokes de Hauts-Fourneaux has decided to maintain in July its adjusted coke prices for June, 180 fr. for P1 quality and 250 fr. for P2. Coke shipments from the Ruhr consigned to French blast furnaces from June 11 to June 19 have averaged 6700 metric tons per day, as against about 4500 tons in the first ten days of June, due partly to better railroad movements from the Ruhr to Creves, a fact creditable to the staff of French engineers.

The Société des Cokes de Hauts-Fourneaux has decided to suspend for the present its purchases of British and American coke, but individual concerns are, of course, at liberty to continue such purchases. Coke imports of France for May and the first five months of 1923 are:

From	In May 1923, Metric Tons	During the First Five Months of 1923, Metric Tons
Sarre	26,192	39,968
Great Britain	47,441	270,578
U. S.	76,696	87,726
Belgium	23,472	184,550
Netherlands	23,214	136,934
Germany	184,416	573,567
Czecho-Slovakia	1,051	28,311
Other Countries	143	146
Totals	382,625	1,321,780

We have been informed from Belgium that there is now standing at Antwerp a stock of 80,000 tons of American coke, in bad physical condition, which it will be very difficult to get rid of, even in mixtures. In Lorraine, the maximum proportion of American coke utilized in mixtures for blast furnaces is 10 to 15 per cent; it would, however, be increased to 25 per cent by the Belval works (Grand Duchy of Luxemburg) of the A.r.b.e.d.

Iron Ore.—The French production of iron ore is slowly increasing; but it certainly does not exceed the present demand. Present prices, f.o.t. mines, are: Algerian iron ores, holding 55 per cent of iron, are now offered at 23s., c.i.f. British ports.

Pig Iron.—The foundry iron market is quiet but purchasers are now in general more willing to conclude forward contracts. Prices of chill-cast foundry pig iron, No. 3 P. L., are ranging from 375 to 400 fr. at furnaces, according to districts of production, grades and destinations; 10 fr. less for sand cast foundry pig iron, No. 3 P. R.

Hematite pig iron is being dealt in at 400 to 410 fr. at furnaces for foundry quality, with 10 to 15 fr. more for forge (affinage) quality. Malleable pig iron is quoted about 50 fr. above foundry hematite. In the Southeast of France we find synthetic pig iron (electrical process) at 420 to 430 fr. at furnaces.

Semi-Finished Steel.—Prices are weak at approximately the following level, at steel works, for basic quality: Blooms, 450 to 470 fr.; billets, 480 to 500 fr. It is even probable that for export lower prices than the above are being accepted.

Beams.—Demand, although moderate, is well maintained. Prices are steady at 580 to 600 fr. at mills in

the East and Lorraine. Small shapes produced in the Haute-Marne district are quoted about 700 to 750 fr. at mills.

Rolled Merchant Products.—The situation as regards rolled merchant products is very irregular; while certain producers, well booked up, are declining to make any concessions, others, who are put to the necessity of replenishing their order books, are sometimes accepting prices as low as 550 fr. at mills. However, prices may, on the whole, be said to average between 580 to 620 fr., also at mills. Hoops are worth at mills 750 to 800 fr. in Meurthe-et-Moselle and 790 to 800 fr. in the Haute-Marne.

Plates and Sheets.—Plates and heavy sheets (5 mm. and over) are being dealt in at 650 to 670 fr. at mills, medium sheets at 900 fr. and light sheets at 950 to 1000 fr.

Castings.—Some producers have orders on hand for several months to come and the only complaint is about an insufficiency of labor supply. Prices are not yet very bright, but have improved, as recent purchases by public authorities clearly indicated.

Railroad Rolling Stock.—French constructors of rolling stock, which have a considerable capacity of production, need orders. French railroads are turning the fact to good account by obtaining from Builders prices which, on the gold standard, are lower than the pre-war prices. It is thus that the P. L. M. Co. has recently purchased from French constructors 140 third-class passenger cars (three axle) at 90,000 fr. each, and 50 first class passenger cars at 124,000 fr. each.

Considers Specifications for Cast Iron Gas Pipe

The American Gas Association has submitted for the approval of the American Engineering Standards Committee three specifications for cast iron pipe and special castings.

These specifications were developed by the American Gas Institute in 1911, at which time the dimensions for bell and spigot castings were adopted. In 1913 the association adopted the dimensions for flanged castings, and specifications governing the manufacture of all cast iron pipe and specials, which were derived from an old standard adopted in 1905 by the American Gas Light Association. These again were based on seven years' experience with the standards designed by the Society of Gas Lighting in 1890. It is said that the specifications now under consideration are in general use for underground gas pipe throughout the United States.

The A. E. S. C. has appointed a large and thoroughly representative special committee to consider the application for the approval of these specifications, and sponsorship for future revisions under the regular procedure involving the organization of a representative sectional committee to consider and develop any changes required. The following are the members of this special committee:

- S. G. Flagg, Jr., chairman, representative of American Society of Mechanical Engineers on A E S C.
- F. A. Barbour, representing American Water Works Association.
- E. A. Barrier, representative of the Fire Protection Group on A E S C.
- W. Forstall, representing American Gas Association.
- A. H. Hall, representative of the gas group on the A E S C, and representing the American Gas Association.
- W. G. Hammerstrom, chief engineer Lynchburg Foundry Co., Lynchburg, Va.
- H. Kely, representing Associated General Contractors of America.
- N. F. S. Russell, representing the U. S. Cast Iron Pipe & Foundry Co.
- R. Toensfelt, representing American Society for Municipal Improvements.
- Walter Wood, president, R. D. Wood & Co.
- C. D. Young, representative of American Society for Testing Materials on the A E S C.
- F. A. McInnes, representing the New England Water Works Association.
- F. F. Schauer, representing the Natural Gas Association of America.
- A. W. Claussen, representing Underwriters' Laboratories.
- J. C. Meloon, representing National Automatic Sprinkler Association.

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ESTABLISHED 1855

THE IRON AGE

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Progressing Toward Three Shifts

The letter of fifteen directors of the American Iron and Steel Institute to President Harding is in harmony with the belief expressed by THE IRON AGE at the time the institute report on the twelve-hour day was submitted at the May meeting, that the declaration marked progress toward abolishing the long day. It was pointed out then that at no time in the history of the American steel industry had so small a percentage of workers been employed on twelve-hour turns, and that as a very considerable number of workers already had gone from twelve to eight-hour shifts, a continuation of the process when the labor supply would permit was to be expected.

The beginning of a further considerable change of hours promises to come more quickly than was generally expected, although a change of this kind cannot be made as soon as some uninformed persons imagine. We have in mind the experience of one company which for a number of years has had the three-shift plan in force in its steel plants. A year or so ago, it acquired another plant and almost immediately started to prepare for the eight-hour day. These efforts were received coldly by a number of the men. Some of the difficulties encountered are thus indicated in a recent letter from one of the officers of the company:

I think I told you when I was in New York that I was very much disappointed over the attitude of the men at ——— with respect to the three-shift program; and it only goes to show how difficult it is to work out a proposition of that kind unless both management and the men are sincerely interested in working it out on a constructive and economic basis.

On one turn we had four first helpers who were actually not interested at all. They said frankly that as far as they were concerned they got enough rest to suit them and if it meant earning any less money at all than they were earning on twelve hours, they did not want the three shifts. We finally did a little bit of manoeuvring and took two of these men off and put them on the opposite turn, putting in their places two men who were enthusiastically anxious to work out the three-shift program, with the result that the men who did want the change, assisted by the open-hearth superintendent, sold the opposition on the point that for their own good and the rest of the organization they ought to get in "the band wagon" and help instead of blocking a constructive move on the part of the company.

Owing to the opposition of the men it required five months longer than had been expected to work out the plan.

It should be said in this connection that for one company or two or three of the lesser steel companies to adopt the three-shift day is far different from a simultaneous movement in that direction throughout the industry. In fact, there can be no better compliance with President Harding's request than a policy of working toward the shorter day as fast as labor supply and other conditions will permit. The problem of housing alone is very difficult. If production continues at anything like the present proportions, the smaller companies or the isolated plants of the larger companies would be much better able to go to three shifts than the large group plants at the important centers of production, like Youngstown and Pittsburgh. The latter, in order to make the change, would require at one time many thousands of additional workers, since whatever one company at such centers does, must be done in like measure by all other producers in the same district.

The concluding paragraph of the report to the institute contained a number of provisos. It was declared that if labor should become sufficient to permit it, the members of the committee would favor entirely abolishing the twelve-hour day. That statement is included in even more positive form in the letter to the President, but the other provisos—that the purchasing public be satisfied with the selling prices which might result from the change and that the employees and industry generally including the farmers would approve—are very properly abandoned, and only one requirement, that of adequate labor supply, is named.

So far as resulting advances in steel prices are concerned, no accurate figures can be given. If it were simply a matter of adding 60,000 to the number of workers (that being the number mentioned by Judge Gary), it might be computed that about \$3 a ton had been added to the cost of finished steel. But if the hourly rate of the men now working twelve hours a day is raised, that would involve the greater expense of increasing the hourly rate of all other furnace and mill work-

ers. However, fluctuations in market prices of steel, under the present régime, have been much greater in a single year than the added cost of the eight-hour day. The notable difference under the new régime would be that the low prices of times of slack demand would be several dollars a ton higher than they have been heretofore under such conditions. That would mean a permanent addition to the cost of steel buildings, bridges, railroad track and equipment, vessels, pipe lines and the cores of other uses to which bulk steel is put. The individual consumer would pay such additions in increased rent, transportation charges and the like, but might not be able to trace the added costs in the case of sheets, tin plate and wire products.

The question as to the attitude of the employees is more serious than that of prices and has not been fully determined. In spite of the demand for the eight-hour shift having been made (by labor union leaders) in the steel strike of 1919, it cannot be denied that large numbers of steel plant employees prefer the long hours unless they can make as much money in the short day. But if the change be not made (and it is not likely to be) until there is considerable unemployment, the men no doubt would be willing to accept decreased pay with the reduced hours, as they have done thus far in every case in which the three-shift day has been tried.

Psychology and the Cycle

As was suggested in these columns recently, much thought has been given of late to the possibilities of business controlling the cycle of business, instead of business submitting completely to control by the business cycle.

Various psychological reactions may occur as a result of discussion of the cycle, while the actual fact must also be considered that the operation of the cycle in the past has been due not entirely to physical and financial influences.

In the administering of food and other substances to the human body many disappointments and surprises have developed. Years ago, when it was learned that iron is an important element in the system, many persons swallowed iron in one form or another, but the most noticeable result was a deranged digestion.

In like manner, in administering to the human mind teachings concerning the business cycle there may be unexpected results if the psychology of the thing be not well considered. It may be proper in a time of activity to tell everybody to carry on moderately so as to avoid the familiar reaction into inactivity. But some men may absorb the statement as information instead of advice, accordingly preparing themselves for dull times and thus helping to bring about such a condition.

It cannot be denied, moreover, that the business cycle is to an undetermined extent a psychological phenomenon in itself. The cycle itself is no new discovery. It is the nomenclature, and the detailed analysis of conditions in the various stages, that are relatively new. Always it has

been known that there is an ebb and a flow in business, a swing of the pendulum, and it has always been natural for men to say to themselves at one time, "This is too good to last," and at another time, "This is too bad to last."

To the extent that men have grown accustomed to look at the course of business in this general way, without studying economic and financial details as to why the condition is too good or too bad to last, to that extent will they be disposed, by their empiric formula, to "get on" or to "get off," thereby helping to produce the cyclical movement. That is purely psychological. It is not less but more important on that account than the individual facts in quantitative economics, for it applies in its way to the vast majority of human minds, whereas there are economic facts that apply much to some men and little to others.

The work of spreading and applying economic information is not discouraged by this consideration of the psychological influences. Indeed, it takes on new interest in view of the effects, for example, of some recent stock market developments which very generally were considered to be due more to a state of mind than to any unfavorable change in business conditions. Presently we may be better able to measure the effects of the simultaneous adoption of a policy of caution by many business men. At the moment opinion is divided on the question whether this has produced such a slowing of the pace as will lead to a further letting-up, or whether the heeding of the warnings so freely sounded has deferred the development of a new and unfavorable phase in the cycle.

Electric Steel in 1922

While no records were broken by American electric steel furnaces in 1922, the statistics for the year made public last week emphasize some interesting trends. A year ago it was pointed out that 1921 was the first year of marked increase both in the proportion of steel castings made electrically and in the quantity of electric alloy castings. The 1922 record practically duplicates the 15 per cent showing of 1921. In 1911, or 12 years ago, electric steel castings were only 1.2 per cent of the total. The 1922 output of 154,982 tons was next to the largest ever made.

Of the total electric alloy ingots and castings made in 1922, castings were 14.2 per cent of the total against 15.9 per cent in 1921 and only 4.8 per cent in 1920. Part of the gain in the last two years is due to the use of heat-treated alloy castings as substitutes for forgings. This development is, therefore, on a more permanent basis.

Taking the electric steel industry as a whole, the 1922 output, 346,039 tons of ingots and castings, ranks third in peace-time operations, and the year showed a net gain of 18 electric furnaces. In 1920 at 502,152 tons, electric steel was 1.2 per cent of the country's total; last year it was about 1 per cent. In 1916 the percentage was but 0.37, and 10 years ago it was less than 0.061 per cent. The electric ingot production last year was 191,057 tons, or 0.55 per cent of all steel ingots. This compares with 0.44 per cent in 1921, 0.85 per cent in 1920 and

0.93 per cent in 1918, the last year of the war, which made a record in electric steel.

Not only is the electric furnace likely to maintain its place in the foundry industry, but another forward step may be looked for when larger furnaces and cheaper electricity prepare the way for larger outputs of high-grade rolled products.

Large Stocks of Coal

The advice so often given at Washington and elsewhere, that coal consumers should carry stocks in order to improve the unfortunate situation that has existed in coal for several years, has not appealed to some men, who thought means should be found for regulating coal other than by the imposition of a burden upon the buyers. It is a condition and not a theory, however, that confronts the coal consuming public. If the coal problem can be solved much more easily in this way than in any other, then this solution should be applied.

As to the cost, ten years ago this would have seemed very high, but by comparison with the large extra cost coal consumers actually have borne in recent years the cost of carrying stocks appears small.

That the advice to stock coal has been heeded in recent months is shown plainly by the latest report of the Geological Survey. Subject to revision, the stocks of bituminous coal in the hands of commercial consumers on June 1 are given at 41,000,000 net tons. As stocks have run in the past this is a very large quantity. The stocks on Armistice Day were enormous, by the measures the trade then had, amounting to 63,000,000 tons. Unprecedentedly large provision was made by consumers against the strike scheduled for April 1, 1922, and the stocks on that date were also estimated at 63,000,000 tons, though they may have been somewhat more. The stocks reported for June 1 last are approximately two-thirds as great as the stocks on those two very unusual occasions.

There has not been even a little indorsement of an opinion that the coal problem will settle itself if the matter is let alone. The practically universal opinion is that some great remedy must be applied. There are various alternatives, nearly all of which have aroused strenuous opposition in most quarters. The proposal that consumers carry large stocks seems to be least opposed. The chief difficulty is that it requires team work. All consumers may not be disposed to cooperate. Publication of the fact that there are large stocks, as a total, may move individual consumers to feel that they do not need to do their part, that when other consumers have so much coal there will be enough for them even if the current offerings become small. There is opportunity, however, to apply moral suasion upon those who do not stock so much as others. There has been stocking without any particular effort at team work until very recently, so that there is room for much more to be done.

The majority of coal strikes in the past quarter

century have had an eye single on the stocks of coal. In some cases a mining suspension occurred chiefly because of the stocks, which it was felt had to be liquidated before there could be a market for coal. A coal strike represents first a loss to the miners, who must afterwards gain more than they have lost, or there is a net loss on the whole transaction. The problem involved in stocking coal, then, is simply to stock enough to make the prospective loss so great that recouping is impossible.

During a period of stocking up in coal the market is steadied, which is not without its advantage to producer as well as to consumer. Coal prices have fluctuated less in the past three months than might have been expected, and undoubtedly the steadying influence has been the stocking. When prices showed a disposition to rise, consumers bought less. When they tended to fall, consumers supported the market.

Estimates of steel consumption by four leading automobile makers from 1918 to 1922 inclusive show a total of 82,774 tons of alloy steel bars in 1918, an increase to 196,783 tons in 1920 and then a recession to 149,873 tons in 1922, in spite of the record-breaking automobile output last year. While the automobile industry as a whole cannot be judged by these four companies, the figures tend to confirm the opinion that less alloy steel is being incorporated in these particular cars. The Ford Motor Co. in 1920 used 162,850 tons of alloy steel bars, but only 103,821 tons in 1922. Whatever the explanation in this particular case, it is a fact that the science of heat treatment has been so developed that many users of steel are finding that they can get the desired results from carbon steel, properly heat-treated, or at least can use less complicated alloy steels. One automobile company is now using a steel containing one alloying metal, whereas its former practice called for a steel carrying two such metals.

It has been stated that considerably more copper has been going into automobiles in the last year or two; that whereas in 1920 about 120,000,000 pounds of copper was credited to the automobile, 144,000,000 pounds was used in 1922. In 1921 the total was around 92,000,000 pounds and in 1919 about 97,000,000 pounds. If these figures are compared with the production of automobiles and trucks for the respective years, it will be found that per car produced very little if any more copper was used last year than in 1921, 1920 or 1919. The total of copper entering into motor car construction was at high point in 1922, but for the 2,659,064 cars and trucks made in that year 144,000,000 pounds of copper represents practically the same amount per unit as the 120,000,000 pounds which went into the 2,205,197 cars and trucks of 1920. Competition among automobile producers is such that, unless absolutely necessary, no increased cost will be incurred and the facts regarding copper are in line with that policy.

YOUNGSTOWN MERGER IN FORCE

Youngstown Sheet & Tube Co. Holds Steel & Tube Properties with Litigation Still Pending

YOUNGSTOWN, July 10.—Formal possession of the properties of the Steel & Tube Co. of America, located chiefly in the Chicago district, has been taken by the Youngstown Sheet & Tube Co., the purchaser. President James A. Campbell and General Superintendent William C. Reilly of the Youngstown independent have been in Chicago in consultation with Steel & Tube officials. For the present, the Steel & Tube operating organization will largely remain intact, but it is the intention to ultimately dissolve the corporate identity of the company.

The Sheet & Tube company is now engaged in plans to reduce Steel & Tube overhead, and effect operating economies, such as was done in the case of the Brier Hill Steel Co., purchased last spring. The Sheet & Tube company has ordered the suspension of one of the two Steel & Tube blast furnaces at Mayville, Wis.

The Allied Chemical & Dye Co., a minority stockholder in the Steel & Tube Co. of America, was granted a preliminary injunction in the Court of Chancery in Wilmington, Del., July 6, restraining the Steel & Tube company from distributing its assets among stockholders at the present time. A rule to show cause to the contrary has been issued by Chancellor Wolcott, returnable next Friday.

Announcement last week by the bankers' syndicate headed by the Bankers' Trust Co., New York, of the offering of \$40,000,000 notes of the Sheet & Tube company, referred to the possibility of legal complications arising from the purchase. In event the sale should ultimately be set aside, it is the opinion of counsel that the purchase price, approximating \$33,000,000, already paid by Sheet & Tube, must be refunded to the purchaser.

Mortgages against the combined properties of Sheet & Tube, following its purchase of Steel & Tube, aggregate \$34,972,222. Physical properties after acquisition of Steel & Tube have a book value as of Dec. 31, 1922, of \$118,464,000, after depreciation. This compares with a value of \$188,606,000 found by independent appraisals in 1921.

Current earnings of the Sheet & Tube company for the first four months of this year, available for depreciation and interest, were \$9,836,000. The company is

now preparing a statement of earnings for the first half of this year.

Improvements Planned

Important improvements to the Steel & Tube properties are already being mapped out by the purchaser and a large sum will be expended to round out the plants so that they will fit in with Sheet & Tube production. Another blast furnace will likely be built at Indiana Harbor, a skelp mill will be added and additional open hearth furnaces.

Some of the Steel & Tube company's isolated properties will be disposed of, such as the Kalamazoo, Mich., plant of the Harrow Spring Co. (of which all the stock was owned by the Steel & Tube Co.) and the two blast furnaces and iron mines at Mayville, Wis. President Campbell states that the Indiana Harbor property, the blast furnaces at South Chicago, tube mills at Zanesville, Ohio, and a zinc property owned by Steel & Tube and included in the purchase, will be retained.

In concluding the transaction, President Campbell signed a single check for \$33,000,000, representing the purchase price. In addition, the Youngstown company assumes bonds against Steel & Tube aggregating \$22,000,000, making the total purchase price about \$55,000,000.

President Campbell states that Sheet & Tube will likely make another careful survey of the Steel & Tube plants before proceeding with any enlargements. "We will probably build an additional, modern blast furnace at the Mark plant at an early date," he states. "We will likely sell such properties as the Harrow Spring Works in Kalamazoo, Mich., and the blast furnace property at Mayville, Wis. The Youngstown Sheet & Tube Co. is essentially a steel making and finishing company. We do not care to go very deeply into the pig iron business, or business not in line with our regular activities. I think we will keep the zinc properties which we acquired with Steel & Tube. They are good producers and valuable."

Purchase of the Steel & Tube plants gives the Youngstown Sheet & Tube Co. the western pipe manufacturing connection which it has desired for many years. Its entrance into the Chicago district was made necessary to meet the competition of the United States Steel Corporation, as the National Tube Co., a Corporation subsidiary, is completing a large tube plant at Gary, Ind.

It is announced that the Zanesville pipe mills of the Steel & Tube company will be supplied skelp from the Brier Hill plants.

CANADIAN IRON MARKET

Buyers Slow in Placing Orders—Light Movement from United States

TORONTO, ONT., July 10.—Notwithstanding that we have entered the third quarter Canadian melters are still withholding pig iron contracts for this period, and up to the present only a small number of consumers have made known their requirements. Some slight improvement, however, has made its appearance in the demand for spot iron and orders for one to two cars are coming forward in better volume than formerly. This reluctance on the part of melters to place contracts for third quarter is expected to have a detrimental effect on the production of pig iron during the next month or so.

Despite the fact that the demand for iron is small the daily melt continues about the same as it was a month ago, namely, from 60 to 80 per cent. This fact leaves the impression that the consumption of iron will continue on a fairly extensive scale, but that melters are somewhat inclined to wait and see just what price concessions may be made by producers before placing contracts for third quarter, and as a result the former are now content to buy on a hand-to-mouth basis.

No change in the number of furnaces blowing has

been made and at the present time 10 furnaces are being operated in the Dominion.

Importations of pig iron have not improved. Small tonnages of special grade iron are coming into Canada from American furnaces, but no shipments have been made from Britain of late. During the past week Canadian furnaces announced a drop of \$2.50 per ton in the price of various grades of pig iron effective both in Toronto and Montreal. Prices now quoted are as follows: No. 1 (2.25 to 2.75 silicon), \$34.05; malleable, \$34.05; No. 2 (1.75 to 2.25 silicon), \$33.05, Toronto. Montreal prices are: No. 1 and malleable, \$36.40; No. 2, \$35.40. No change is announced in British iron, which is holding at \$40 per ton, warehouse, Montreal, in lots from five tons upward for both Summerlee and Carron.

No Time Set for Hearing Merger Case

WASHINGTON, July 10.—The definite statement was made today at the office of the Federal Trade Commission that it has not set a date for hearing the Bethlehem-Midvale-Lackawanna merger case. The announcement of the commission grew out of published reports giving various dates as to the time of the hearing. It is believed that the commission soon will determine and announce the dates.

COAL COMMISSION REPORT

Keen Interest Shown—Operators Willing to Abandon 12-Hour Day

WASHINGTON, July 10.—The report of the Federal Coal Commission on the anthracite coal industry has created interest not only because of the recommendations it carries with respect to that industry, but also because of the possible bearing they may have on the report the commission is to make on Sept. 22, regarding the bituminous coal industry. Obviously there are sharply distinguishing characteristics existing in these two units of coal mining. For this reason, the recommendations in each instance might differ greatly in some respects, and an effort to anticipate the recommendations with respect to the forthcoming report would be idle.

It is observed with interest, however, that in the anthracite report, the commission has made some rather sweeping suggestions, though in view of growing public opinion against controversies in the industry, the recommendations have not been surprising. Among the important ones are those relating to limited Government regulation of the anthracite coal industry, with authority to be granted to the President in the event of strikes to take over the operation of the mines, transportation and marketing of the product. Recommendation also is made that both operators and miners should, if necessary, be forced to deal with each other and if there is no legal authority for such compulsion it will be recommended in the final report to be made in September. The report makes it plain that punitive legislation may be recommended later, this apparently depending on whether the next agreement between miners and operators, now being discussed at Atlantic City, shall show a cooperative spirit and a proper conception of the rights of the American people.

Do Not Show Clean Hands

The report makes pointed comment directed at both operators and miners as to the attitude of each side concerning the so-called open shop and the closed shop. It states that the open shop in a unionized mine is open to the union miner and closed to the non-union miner, while the open shop in the non-union mine is open to everybody save a union mine worker. In other words, the report says, neither side can show clean hands. Plans for devising new agreements to fit modern day operations are suggested. In this connection it is interesting to note that the recommendations would provide a penalty for the failure of either side to live up to its contract. It does not go so far as to urge incorporation of organized labor, but it does make it plain that the latter should be forced under the threat of penalty to carry out its contract. The report makes it clear that the anthracite industry, unlike the bituminous industry, is in the hands of only a comparatively few operators and, therefore, is more easily controlled and that anthracite is largely a product for household consumption rather than being used widely for industrial consumption, as bituminous coal is.

The report also points out alleged greatly increased profits to anthracite operators and dealers within the past few years, and as a means of relief suggests to consumers the practicability of using briquettes and coke as substitutes. Reexamination of freight rates on anthracite coal by the Interstate Commerce Commission is suggested.

Would Abandon Long Day

The anthracite operators yesterday replied to the 11 demands of the mine workers by conceding two and assuring open-mindedness on the other nine. On wage increases the operators indicated firm resistance.

The two concessions were the abolition of the 12-hr. day, involving about 3,000 men, and the requirement that the umpire of the Anthracite Board of Conciliation render decisions within 30 days.

A joint pledge to continue mining after Sept. 1, when the present contract expires, even though re-

newal of the scale had not been agreed upon, was proposed by the operators. The miners rejected it on the ground it would be unnecessary if the conferees applied themselves to the task at hand.

GERMAN PRICES RISE AGAIN

Increase of More Than 30 Per Cent in Steel and of 9 Per Cent in Foundry Iron—Exchange Rate About Balances the Difference

(By Radiogram)

BERLIN, GERMANY, July 9.—Foundry iron No. 1 has been advanced by the Pig Iron Association to 3,469,000m. per metric tons (\$15.42 per gross ton at 0.4375c. per 1000m.), compared with 3,198,000m. (\$18.68 at 0.575c. exchange) last week and with 774,000m. (\$12.97 at 1.65c. exchange) six weeks ago.

Steel prices have been increased almost one-third by the Stahlbund. Ingots are now 4,437,000m. (\$19.72), compared with 3,382,000m. (\$19.75) last week and with 1,271,000m. (\$21.30) six weeks ago.

Steel bars are now quoted at 6,300,000m. (1.25c. per lb.), compared with 4,800,000m. (also 1.25c. per lb.) last week and with 1,755,000 m. (1.31c. per lb.) six weeks ago.

Thin steel sheets have been advanced to 10,234,000m. (2.03c. per lb.), compared with 7,800,000 m. (also 2.03c. per lb.) last week and with 2,818,000m. (2.11c. per lb.) six weeks ago.

Sheet and Tin Mill Workers' Wages Are Advanced

Employees in sheet and tin mills operating under the sliding scale wage agreement of the Amalgamated Association of Iron, Steel & Tin Workers will receive a wage advance of 6 per cent, as a result of the bi-monthly examination of sales sheets conducted July 9 at Youngstown.

For the first time, the tonnage rates of tin mill workers were based on the black sheet basis. The 6 per cent increase for tin mill employees is in addition to an approximate 9 per cent advance for June, when the tonnage rates of such operatives were brought up to the sheet scale level.

Examination of sales sheets revealed an average selling price of \$3.60 per 100 lb. on Nos. 26, 27 and 28 gage black sheets shipped during the 60 days ending June 30 by Mid-Western mills. This compares with a \$3.40 average disclosed two months ago.

The settlement was conducted between James H. Nutt, representing the Western Sheet & Tin Plate Manufacturers' Association, and M. F. Tighe of Pittsburgh, president of the Amalgamated association.

The new tonnage rates will apply for the July-August period, and represent a rate of 43½ per cent above the base.

Youngstown officials of the Ohio-Kentucky Fluorspar & Lead Corporation, with properties in Livingston County, Ky., recently completed an inspection of the holdings. The company is now installing a 100-ton mill which is expected to be in operation by next fall. Among those in the party were J. B. Kennedy, president of the company, Warren Williamson, treasurer, and John R. Rowland, a director.

Equipping open-hearth department cars with roller bearings goes on apace. In the past few weeks the Hyatt Roller Bearing Co., Newark, N. J., has been asked by seven of the notable steel companies of the country to supply its steel mill bearings for 136 ingot cars, including six double truck cars and 55 charging cars.

British Iron and Steel Market

Lower Prices Prevail, Particularly in Semi-Finished Steel—Ruhr Fuel Supplies Cause Concern, But More Furnaces Relighted
(By Cable)

LONDON, ENGLAND, July 10.

There is a small revival in the demand for pig iron, owing to the fact that the makers have been quoting lower prices, but consumers generally are reluctant to commit themselves.

The dock workers' strike is likely to affect fuel prices, if continued, thereby hampering further reduction in iron and steel prices and making probable the banking of furnaces. Palmer's Iron Works, Jarrow, already has blown out two furnaces.

Hematite is dull, though some fair sales have been made on German account. Prices are easier.

There is fair German demand for iron and steel, but prices still are unattractive. Thin plate makers are well booked up and some are not quoting for fresh sales. But orders for heavy material are wanted. Scotch plants have closed for the holidays.

* Foreign ore is stagnant. Quotations are nominal, with best Rubio talked at 25s. (\$5.70) ex-ship Tees.

Continental positions are difficult to judge. Iron makers apparently are apprehensive of a future fuel shortage and prices, in consequence, have a higher tendency. Little business is passing.

In Belgium the Société Anonyme John Cockerill has relighted one furnace at Seraing, near Liège. Both the Société Anonyme des Hauts-Fourneaux, Fonderies et Mines de Musson and the Société Anonyme des Hauts-Fourneaux du Sud de Châtelineau are preparing to blow in fresh furnaces. The total number of Belgian [blast] furnaces active July 1 was 38; as against 35 June 1.

In Germany, the French have seized the Krupp fuel stocks, amounting to 60,000 to 70,000 tons, at Segeroth. The steel works consequently is idle. Seizures also are reported at the Mannesmannrohren Werke at Düsseldorf. Reports have it that Ruhr iron ore stocks are sufficient for several months, but Swedish producers are endeavoring to transport fresh supplies into Dortmund by the Dortmund-Ems canal.

Tin plate is quiet. The minimum price is unaltered but merchant sellers' prices for forward delivery are lower.

Galvanized sheets are weak, with little substantial demand.

Japan has made a few purchases of thin specifications black sheets at £19 (3.87c. per lb.) f.o.b. Other markets are dull.

We quote per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.56 per £1, as follows:

Durham coke, delivered	£2 1½s.		\$9.46
Bilbao Rubio ore†	1 4		5.47
Cleveland No. 1 foundry	6 0	to £6 5s.	27.36 to \$28.50
Cleveland No. 3 foundry	5 10		25.08
Cleveland No. 4 foundry	5 5		23.94
Cleveland No. 4 forge	5 2½		23.37
Cleveland basic	5 10		25.08
East Coast mixed	5 10		25.08
Ferromanganese	18 0		82.08
Ferromanganese*	20 0		91.20
Rails, 60 lb. and up	9 10	to £10 0s.	43.32 to 45.60
Billets	7 10	to 8 10	34.20 to 38.76
Sheet and tin plate bars			
Welsh	9 2½		41.61
Tin plates, base box	1 3	to 1 3½	5.24 to 5.27
Ship plates	9 15	to 10 5	1.98 to 2.09
Boiler plates	12 10	to 13 0	2.54 to 2.65
Tees	10 5	to 10 15	2.09 to 2.19
Channels	9 10	to 10 0	1.93 to 2.04
Beams	9 5	to 9 15	1.88 to 1.98
Round bars, ¾ to 3 in.	11 0	to 11 10	2.24 to 2.34
Galvanized sheets, 24 g.	17 15	to 18 0	3.61 to 3.66
Black sheets, 24 gage	13 10	to 13 15	2.75 to 2.80
Black sheets, Japanese specifications	15 5		3.10
Steel hoops	12 0	& 12 10*	2.44 & 2.54*

Cold rolled steel strip, 20 g.	£17 5s.	C. per Lb.
Cotton ties, Indian specifications	15 0	3.51
		3.05

*Export price. †Ex-ship, Tees, nominal.

Continental Prices, All F. O. B. Channel Ports, Delivery as Specified

Foundry pig iron:				
Belgium, July	£5 5s.	to £5 7½s.	\$23.94 to \$24.51	
France, July	5 5	to 5 7½	23.94 to 24.51	
Luxemburg, July	5 5	to 5 7½	23.94 to 24.51	
Billets:				
Belgium, July	6 10	to 6 12½	29.64 to 30.21	
France	6 10		29.64	
Merchant bars:				C. per Lb.
Belgium, July	7 10			1.53
Luxemburg, July	7 15			1.58
France	7 10			1.53
Joists (beams):				
Belgium, July	7 7½	to 7 10	1.50 to 1.53	
Luxemburg	7 15		1.58	
France	7 7½	to 7 10	1.50 to 1.53	
½-in. plates:				
Belgium, July	8 5	to 8 10	1.68 to 1.73	
¾-in. plates:				
Luxemburg	7 7½		1.50	
Belgium	7 10		1.53	

Pig Iron Prices Easing and Output Likely to Decline—Steel Prices Slowly Falling

LONDON, ENGLAND, June 28.—The pig iron market shows no improvement so far as demand is concerned and prices have eased off. This may be regarded as a step in the right direction, in so far as it brings nearer the time when some general revival in the iron and steel industry may be possible, but from the point of view of pig iron producers it is not very satisfactory. Costs continue high, and there is continued talk of damping down of furnaces.

During the month of May the changes in rates of wages aggregated a reduction of nearly £100,000 in the weekly full-time wages of nearly 900,000 workmen, but an increase of over £90,000 in the wages of 700,000. The reductions were largely in the building trades, while the principal groups obtaining increases in wages were coal miners, in several important mining districts, and iron miners, blast furnace workers, puddlers, millmen and steel workers, who in certain areas secured advances under sliding scale agreements on account of the increased prices obtained for iron and steel products. In certain directions, therefore, a reduction in costs may follow the decline in selling prices, and, although it is always difficult to get a start made, the easier tendency in pig iron prices may possibly prove to be the beginning.

In the Middlesbrough district contracts are rapidly running out and Cleveland pig iron is now quoted at about 112s. 6d. for No. 3, while No. 1, which is relatively scarce, is quoted at about 125s. The make, however, in general, is in excess of current requirements, and stocks at makers' yards are showing a steady accumulation. The output of East Coast hematite is also in excess of the demand, and in the hope of preventing an accumulation of stocks, makers have been shading prices. East Coast mixed numbers stand at about 112s. 6d. per ton, the same as No. 3 foundry, and, indeed, at times it has actually been quoted lower than foundry iron. In the Manchester district the position is much the same, consumers of pig iron showing a reluctance to commit themselves at present prices, and although the figures asked have been shaded, buyers are evidently looking for much more drastic cuts in prices. The result is that it will soon be a question of blowing out some of the Midland furnaces if stocks are not to be accumulated.

In finished iron and steel there is no material alteration in the position. So far, the demand has not expanded, possibly owing to the fact that prices are so slow in coming down. Although continental material is offered at competitive prices, few orders seem to be placed in that direction either. In spite of this, however, the prices asked on the continent are rather harder than they were, owing apparently to the possible difficulties in securing fuel supplies, as well as to a slightly improved local demand.

Iron and Steel Markets

Output and Orders Less

July Promises Further Curtailment in Production

Pig Iron Still Declining—New Labor Developments

The week has brought evidence of lessened steel production, of continued decline in pig iron and scrap prices and of better supply of common labor. Orders on the books of the steel companies have fallen off somewhat, and new buying shows more marked effects of midsummer quiet.

Steel ingot output in June, at 3,748,890 tons, or 144,188 tons a day, was at a daily rate about 7 per cent less than that of 155,400 tons in May. From the high output of April, which represented 49,000,000 tons a year, there was a drop last month to a yearly rate of 45,000,000 tons.

The outlook now is for less production of both pig iron and steel ingots in July than in June. Steel works have only 25 working days this month, and the midyear rolling mill shutdowns and summer heat are further factors.

The reduction of 595,000 tons in the Steel Corporation's unfilled orders in June indicates the high rate of shipments to consumers in that month. It is significant that these large shipments were chiefly of material bought at less than today's prices. On the contrary, pig iron currently being shipped was bought at prices below those of today.

Finished steel prices continue to be well held, apart from the concessions in sheets, reinforcing bars and hot-rolled strip steel, but buyers are watching closely the new relation of capacity and consumption and are attaching more significance to the declines in pig iron, coke and scrap.

Three labor developments are attracting attention for their possible effect on the steel market. First is a slightly better supply of common labor, with less competition from building and road work. At the same time labor union leaders announce a new campaign to organize iron and steel workers, while several of the largest steel companies are arranging conferences of plant managers as the first step toward eight-hour shifts.

While the larger motor car makers are keeping close to their June schedules in output, they see ahead some slowing down and are taking in less steel, while drawing more on their stocks. Meanwhile producers of alloy steel are curtailing somewhat. Strip steel mills also are well caught up on automobile business.

Lake shipyards have several new inquiries for boats and the total pending would require 20,000 to 25,000 tons of steel.

Railroad equipment buying has reached the low point of the year. About 800 cars of all descriptions were placed and there are new inquiries for 650.

Fabricated steel has had an off week. Nineteen awards averaged less than 240 tons apiece, but a court house in Los Angeles, 7100 tons, brings the total to nearly 12,000 tons. Railroad

bridgework was conspicuous both in the buying and in new inquiry. The largest new building project is that of the Ford Motor Co. at St. Paul, calling for 7500 tons of steel.

The recent wage settlement for Central Western iron mills gives puddlers \$13.88 per ton for July and August, an advance of \$1.76 over the May-June rate. The average bar iron price was found to be 2.50c., as against 2.35c. in the previous 60 days.

The new Carnegie card of extras for steel bars and small shapes, showing large increases for some sizes, is in harmony with the policy of making prices more nearly in line with costs. These have increased heavily, especially in labor, since the old card was issued in 1908.

Weakness in pig iron is more pronounced, with lower quotations in nearly all Northern centers and further concessions by Tennessee furnaces. Chicago prices again have fallen \$1, making \$4 within a month. On foundry irons prices have declined at least \$1.50 in eastern Pennsylvania and more at Buffalo. Stocks on Alabama furnace yards increased about 13,000 tons in June. A blast furnace in Alabama, one in Wisconsin and one in Pennsylvania have blown out. The outlook is that others will soon go on the idle list rather than continue to pile iron.

Estimates of cast-iron pipe production for the first half of this year indicate an increase of 40 per cent over the first half of 1922. Last year's total production was 1,266,245 net tons. Labor shortage prevents full operation of some shops.

British makers, by united action, have reduced ferromanganese from \$125 to \$117.50, American Atlantic port, duty paid. This action recognizes the continued decline in pig iron prices here and the shrinkage in use of ferromanganese as steel output has fallen off.

Following almost immediately its purchases of round tonnages of rails, Japan is now in the market for 7000 tons of 75-lb. and 3000 tons of 60-lb. rails.

THE IRON AGE pig iron composite price, at \$26.04 per gross ton, is \$4.82 below the high point of last spring and 75c below last week's figure.

For the tenth successive week THE IRON AGE composite price for finished steel stands at 2.789c. per lb., compared with 2.446c. at the beginning of the year and 2.169c. one year ago.

Pittsburgh

Fair Business for Steel Makers—Pig Iron Prices Decline

PITTSBURGH, July 10.—While a fair amount of business is coming to steel makers in this district, it is generally for moderate sized lots and in all cases for early delivery. Buyers of steel evidently are satisfied that higher prices are not likely in the near future and there has been such a steep decline in pig iron and coke in the past six weeks, to say nothing of the heavy decline in scrap prices, they apparently sense the possibility of lower prices of finished material. The market has declined \$6 a ton on basic pig iron since April and today's offering price of \$19 for steel scrap represents a

A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics

At date, one week, one month, and one year previous

For Early Delivery

Pig Iron, Per Gross Ton:	July 10, 1923	July 2, 1923	June 12, 1923	July 11, 1922
No. 2X, Philadelphia	\$28.26	\$29.76	\$30.76	\$27.64
No. 2 Valley furnace	26.00	26.50	29.00	24.00
No. 2, Southern, Cin'ti	29.05	29.05	29.55	21.53
No. 2, Birmingham, Ala.	25.00	25.00	25.50	18.00
No. 2 foundry, Chicago*	28.00	29.00	32.00	24.00
Basic, del'd, eastern Pa.	27.00	28.00	28.14	25.75
Basic, Valley furnace	25.00	25.50	27.50	24.00
Valley Bessemer, del P'gh	28.27	29.27	30.77	26.77
Malleable, Chicago*	28.00	29.00	32.00	24.00
Malleable, Valley	26.00	26.50	29.00	24.50
Gray forge, Pittsburgh	27.27	27.77	30.27	25.27
L. S. charcoal, Chicago	36.65	36.65	36.65	31.65
Ferromanganese, furnace	120.00	125.00	130.00	67.50

Rails, Billets, Etc., Per Gross Ton:	July 10, 1923	July 2, 1923	June 12, 1923	July 11, 1922
O.-h. rails, heavy, at mill	\$43.00	\$43.00	\$43.00	\$40.00
Bess. billets, Pittsburgh	42.50	42.50	42.50	35.00
O.-h. billets, Pittsburgh	42.50	42.50	42.50	35.00
O.-h. sheet bars, P'gh	42.50	42.50	45.00	35.00
Forging billets, base, P'gh	47.50	47.50	52.50	40.00
O.-h. billets, Phila	47.67	47.67	50.17	40.17
Wire rods, Pittsburgh	51.00	51.00	51.00	40.00
Skelp. gr. steel, P'gh, lb.	2.40	2.45	2.45	1.70
Light rails at mill	2.25	2.25	2.25	1.75

Finished Iron and Steel,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia	2.67	2.72	2.72	1.925
Iron bars, Chicago	2.50	2.50	2.60	1.80
Steel bars, Pittsburgh	2.40	2.40	2.40	1.70
Steel bars, Chicago	2.60	2.60	2.60	1.75
Steel bars, New York	2.74	2.74	2.74	2.04
Tank plates, Pittsburgh	2.50	2.50	2.50	1.70
Tank plates, Chicago	2.80	2.80	2.80	1.75
Tank plates, New York	2.84	2.84	2.84	2.04
Beams, Pittsburgh	2.50	2.50	2.50	1.70
Beams, Chicago	2.70	2.70	2.70	1.75
Beams, New York	2.84	2.84	2.84	2.04
Steel hoops, Pittsburgh	3.15	3.30	3.30	2.50

*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

†Silicon, 1.75 to 2.25. ‡Silicon, 2.25 to 2.75.

The prices in the above table are for domestic delivery and do not necessarily apply to export business.

Sheets, Nails and Wire, Per Lb. to Large Buyers:	July 10, 1923	July 2, 1923	June 12, 1923	July 11, 1922
Sheets, black, No. 28, P'gh	3.85	3.85	3.85	3.15
Sheets, galv., No. 28, P'gh	5.00	5.00	5.00	4.15
Sheets, blue an'd, 9 & 10	3.00	3.00	3.00	2.40
Wire nails, Pittsburgh	3.00	3.00	3.00	2.40
Plain wire, Pittsburgh	2.75	2.75	2.75	2.25
Barbed wire, galv., P'gh	3.80	3.80	3.80	3.05
Tin plate, 100-lb. box, P'gh	\$3.50	\$3.50	\$3.50	\$4.75

Old Material,

Per Gross Ton:	July 10, 1923	July 2, 1923	June 12, 1923	July 11, 1922
Carwheels, Chicago	\$21.00	\$21.00	\$22.00	\$19.50
Carwheels, Philadelphia	20.00	22.00	23.00	17.50
Heavy steel scrap, P'gh	18.50	20.00	21.50	17.50
Heavy steel scrap, Phila	17.00	17.50	18.00	15.00
Heavy steel scrap, Ch'go	17.25	17.25	18.00	15.50
No. 1 cast, Philadelphia	20.50	21.00	22.00	17.50
No. 1 cast, Pittsburgh	21.50	22.50	24.50	19.00
No. 1 cast, Ch'go, (net ton)	20.50	21.50	22.00	17.00
No. 1 RR. wrot. Phila	19.00	21.00	23.00	17.00
No. 1 RR. wrot. Ch'go, (net)	15.00	15.00	15.50	13.50

Coke, Connellsville,

Per Net Ton at Oven:	July 10, 1923	July 2, 1923	June 12, 1923	July 11, 1922
Furnace coke, prompt	\$4.75	\$4.75	\$4.75	\$3.50
Foundry coke, prompt	5.50	5.50	5.50	10.00

Metals,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York	14.87½	15.00	15.25	14.00
Electrolytic copper, refy.	14.25	14.50	14.75	13.75
Zinc, St. Louis	6.05	5.75	6.15	5.52½
Zinc, New York	6.40	6.10	6.50	5.87½
Lead, St. Louis	5.70	6.55	7.00	5.50
Lead, New York	6.00	6.85	7.25	5.75
Tin (Straits), N. Y.	38.25	38.50	42.00	31.12½
Antimony (Asiatic), N. Y.	6.75	6.95	6.75	5.00

Composite Price July 10, 1923, Finished Steel, 2.789c. Per Lb.

Based on prices of steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets	July 2, 1923, 2.789c.
	June 12, 1923, 3.789c.
	July 11, 1922, 2.169c.
These products constitute 88 per cent of the United States output of finished steel	10-year pre-war average, 1.689c.

Composite Price July 10, 1923, Pig Iron, \$26.04 Per Gross Ton

Based on average of basic and foundry irons, the basic being Valley quotation, the foundry an average of Chicago, Philadelphia and Birmingham	July 2, 1923, \$26.79
	June 12, 1923, 28.46
	July 11, 1922, 23.61
	10-year pre-war average, 15.72

drop of \$8 or more from the peak price of the forepart of the year.

The slump in the pig iron market is largely ascribed to selling of surplus production by the steel companies and it is now understood that those who have been selling, realizing the possible effect of declining pig iron prices upon the finished steel market, either are withdrawing from the market or are naming prices above those at which they recently were willing to sell. Today's prices are so unprofitable for a number of merchant pig iron producers that it is expected that at least one-half dozen furnaces will be banked or blown out in the next few weeks.

In the main, steel prices are well maintained. A new list of discounts on bolts and nuts has appeared, which reflects a reduction of 10 per cent from the former published quotations and on hot-rolled flats, hoops, bands and hot-rolled strips, 3.30c. base is merely an "official" quotation. The fact that bars may be had at 2.40c., base, for very prompt delivery and plates at 2.50c. for shipment in four or five weeks gives these quotations the appearance of being delivery premium prices. There is not enough forward buying of these

products to determine what the market is for deferred delivery. It is claimed here that there is no shading of the regular prices on sheets, and reports that black sheets are selling at 3.75c., base, cannot be verified.

The Carnegie Steel Co. last week issued a new card of extras on steel bars substantially advancing all extra charges and the American Sheet & Tin Plate Co. has revised and advanced the extras on the heavy base weights of tin plate. Those revisions are the result of a check-up of individual costs and reflect the changes in costs which have occurred since the old cards were compiled several years ago.

Plant operations generally are at a higher rate this week than they were last week, but remain somewhat below those of the last week of June. Sheet mill operations, which fell off most during the holiday week, have increased on an average about 10 per cent. There has been no material decline in ingot production, but this month will show up smaller in pig iron production due to the fact that several blast furnaces were banked over the holiday and at least one half dozen furnaces will go out of production between now and the end of the month.

The scrap market shows further sharp recessions due to the absence of mill buying and the anxiety of dealers to find a place for material they must move. The coke market is no lower than it has been, but does not show much rallying power since production is more than ample and there is the threat that much tonnage will be thrown back upon the market as the result of blast furnace suspension.

Pig Iron.—The past week has seen further declines in all grades, basic foundry and malleable grades being off 50c. a ton, while Bessemer is offered at \$26.50 as compared with last week's quotation of \$27.50. There has been one sale of a round lot of basic at \$25, Valley furnace. Details other than the price are withheld, but the tonnage involved is understood to be at least 2000 tons, the purchaser being a furnace interest anxious to catch up with its obligations. Another sale also at \$25, Valley furnace, to the steel foundry of a local car builder involves 1000 tons. There are reports that sales of basic have been made as low as \$24.50 and even \$24, but confirmation cannot be had. Sales of Bessemer iron, usually in small lots, have been at \$27, Valley furnace, but there are definite offers by producers now at \$26.50, Valley furnace. While occasional sales of foundry iron are reported as high as \$27, Valley furnace, for the base grade, the prevailing market is \$26 and brokers claim they are able to buy as low as \$25.50. Valley furnace interests are quoting malleable iron at \$26, and claim to have made sales at that figure, although there is a tonnage of this grade laying on the yard of a western Pennsylvania furnace that is available at \$25.50. The Valley maker of low phosphorus iron still is quoting \$35, furnace, but this price cannot now be obtained since an Eastern furnace has sold through its local agents approximately 500 tons at \$30 and \$29 furnace, or \$34.42 to \$35.42 delivered, as against \$36.77, the delivered price at Pittsburgh on \$35 at the Valley. The Shenango Furnace Co. this week will bank one of its two active furnaces because of the exhaustion of storage space, and the Claire furnace, at Sharpsville, Pa., will be banked, starting about July 15, for a period of about six weeks, while new blowing engines are connected up. Fannie furnace of M. A. Hanna Co., West Middlesex, Pa., will go out of blast before the end of the month, and the stack of the Clinton Iron & Steel Co., Pittsburgh, also is mentioned as an early addition to the idle list, as is also the Dover furnace, M. A. Hanna Co., Canal Dover, Ohio.

We quote Valley furnace, the freight rate for delivery to the Cleveland or Pittsburgh district being \$1.77 per gross ton:

Basic	\$25.00
Bessemer	\$26.50 to 27.00
Gray forge	25.50
No. 2 foundry	26.00
No. 3 foundry	25.50
Malleable	26.00
Low phosphorus, copper free (nominal)	35.00

Ferroalloys.—Business in all ferroalloys still is very light and prices, though unchanged, are merely nominal. Domestic producers of ferromanganese some time ago disposed of considerable tonnage to middlemen in the belief that the tonnage had been sold to consumers. It now develops that these purchases, made generally around 110, were speculative and as many of them have not yet been specified against, they constitute something of an obstacle to fresh business at the price now quoted by producers. Some resale British material also is available at well below the current price, but generally, British producers are better sold up than those of this side of the water, one explanation being that the Steel Corporation, a short time ago, when it was having difficulty in bringing in ore, bought between 30,000 and 40,000 tons of British ferromanganese as a protection against shortage. We note one sale of a round lot of spiegeleisen at \$45, furnace, for 19 to 21 per cent material, but general demand for this alloy is light, since important consumers are well covered by contracts and deliveries are free against these contracts. There has been no official announcement of a reduction in Bessemer ferrosilicon or silvery irons, but sales at below the quoted schedules are reported from other districts. Demand for 50 per cent ferro-

silicon has grown so limited that sales now are possible only at the contract base of \$82.50, delivered. We note a sale of a carload at that price to a local car builder. Prices are given on page 113.

Semi-Finished Steel.—It has just come out that the third quarter price of sheet bars of the Steel Corporation to those makers of tin plate which it continues to serve is \$42.50, the same price as was announced a few weeks ago by independent producers. No other price is quotable on sheet bars at the moment because open market activities are extremely limited and naturally producers are not disposed to force sales since this would make necessary an adjustment in the contract price. Rolling billets and slabs also are quoted at \$42.50, but this price is largely untested, as inquiries are extremely few. Efforts to obtain more than \$50 base for forging billets usually are unsuccessful. While there is not much competition for business in the latter form of steel on account of the extra labor involved, one company appears willing to take tonnages at \$47.50 and there are no current inquiries so urgent in character as to lead buyers to pay more. The skelp market is virtually at a standstill, as important consuming interests are getting plenty of material on contracts from their regular sources of supply. We quote skelp at 2.40c. to 2.45c., but these are asking rather than sales prices, notwithstanding that sheared plates still command 2.50c. There has been no weakening as yet in prices of wire rods, although orders for third quarter delivery are below those for the second quarter with most makers. Production has declined almost as much as the demand, and makers are encouraged to hold firmly by the thought that recent revision of extras for bars is going to mean a demand for rods as a substitute. Buyers argue that rod prices do not reflect the decline which has taken place in billets, but makers point out that rods have eased off from \$55 base to \$51. Prices are given on page 113.

Wire Products.—Business has quieted down considerably since last accounts and with makers making a steady reduction in their obligations and likely to be cleaned up on them by Sept. 1, they are more anxious for business than they were recently. They are not yet making contracts except in a few instances with large customers, preferring to take on specified orders. There is no sign of agricultural buying as yet and mid-year inventories are keeping down demands from other sources. A better market is expected within the next 30 days and if the new extras on bars recently announced by the Steel Corporation find general adoption and adherence, it is believed that there will be considerable substitution of wire for the smaller sizes of bars. There are no suggestions of shading of the regular prices on wire products which are given on page 112.

Nuts, Bolts and Rivets.—Some makers of bolts and nuts have come out with a new lists of discounts which, while reflecting a reduction of 10 per cent, actually amount to a confirmation of the prices which were really being quoted privately. It is claimed that the former quotations still are in effect on small lot business. The new discount on bolts is 50, 10 and 10 per cent off list for large machine bolts. Business is just fair, as buyers still have much low-priced material coming to them on old orders and want to be satisfied that prices are at bottom before committing themselves further. Prices on rivets are unchanged, but concessions are appearing on attractive specifications. Prices and discounts are given on page 112.

Steel Rails.—Demand for light rails still is dull, but this fact does not seem to affect prices any. Makers rolling these sections from billets or standard rail crops still are quoting 2.25c. base. Those rolled from old rails are priced \$1 to \$2 per ton less.

We quote 25 to 45-lb. sections, rolled from new steel, 2.25c. base; rolled from old rails, 2.15c. to 2.20c. base; standard rails, \$43 per gross ton mill for Bessemer and open-hearth sections.

Track Fastenings.—Small spikes still are very slow of sale, but a good, steady business is being done in large spikes and other products under this heading. We note no change in prices. They are given on page 112.

Iron and Steel Bars.—Buyers are getting such good deliveries on old and low priced contracts that their present needs are very moderate and they are having little trouble in getting them covered promptly at 2.40c. base. We hear of no shading of this price, although the new card of extras virtually means 2.50c. base since it involves an average increase of about \$2 a ton. It is reported that as low as 2.25c. base has been quoted on reinforcing bars, but mills here disclaim having made any such quotations. Iron bars are sustained more because makers are obliged to pay more for labor than because of the big demand.

We quote soft steel bars, rolled from billets, at 2.40c. base; bars for cold-finishing of screw stock analysis, \$3 per ton over base; reinforcing bars, rolled from billets, 2.40c. base; refined iron bars, 3.25c. base, in carload lots or more f.o.b. Pittsburgh.

Hot-Rolled Flats.—Although the Steel Corporation is not a factor in early supplies of hoops and bands, its price of 3.15c. base for the ordinary gages and widths has an influence on what buyers are willing to pay. Independent makers still regard 3.30c. as the regular base on hoops, bands and hot-rolled strips, but it is admitted that not much business is on the books at that figure and it has lately become merely an asking price on hot-rolled strips, some makers of which in their anxiety for business, have gone as low as 3c. base. Prices are given on page 112.

Structural Material.—Aside from the fact that mills are making better delivery promises as they catch up with their old obligations, the situation is unchanged. We note no deviation from the regular market price of 2.50c. base for large structural shapes. The market for fabricated steel is weaker than that in plain material in that the shops are giving away part of the advantage of current receipts of plate material, prices of which are much below those now quoted. Prices are given on page 112.

Plates.—There continues to be a lively inquiry for moderate sized tonnages, chiefly in connection with oil storage tank inquiries, and a fair amount of business is being closed at 2.50c. base, Pittsburgh. Some of the tank builders cannot promise deliveries as promptly as they are desired and plate business therefore is not as heavy as the inquiries. Prices are given on page 112.

Tubular Goods.—Pressure for deliveries of material already ordered, particularly in the case of standard pipe, shows no abatement, but buying is decidedly lighter. It is now possible to make deliveries of steel line pipe in three and four weeks, and promises of delivery on oil well goods are not nearly as deferred as they were recently. The South Penn Oil Co. has an inquiry out for 31,000 feet of 8-in. line pipe.

Sheets.—Buyers generally are well covered by contracts or orders with the mills, and since deliveries are well up to quotas and there are no hitches, buying is very limited. Cancellations and suspensions are virtually unknown, and another surprise to the trade is that in the face of a light demand there is practically no shading of regular prices. There has been some recovery in mill operations which are about 10 per cent in the case of the independent companies. Prices are given on page 112.

Tin Plate.—Signs multiply that there is going to be a shortage of supplies before the summer is over. Most makers took all the third quarter business they figured they could complete and now find that on account of the hot weather and shortage of labor they are falling behind in their deliveries. Food container requirements are exceptionally heavy this year, and there are a good many inquiries for tonnages to supplement original orders. Mills are not accumulating many stock items and such material does not promise to be of much help in piecing out the general supply. The American Sheet & Tin Plate Co. recently announced the adoption of extras on heavy base weights of tin plate which provides for a charge of \$1.15 for the first cross (20 lb.), over 100 lb. base, an increase of 25c., and for each additional cross there is now a charge of 85c., as against 65c. in the old list of extras. It has been found that the old charges did not cover the extra

weight of metal and the new card has been adopted to correct this condition. Independent makers have adopted the new card.

Cold-finished Steel Bars and Shafting.—There is a fairly good business, but it is almost entirely for moderate sized lots for early delivery, buyers showing practically no inclination to anticipate their requirements, although the new card of extras, recently adopted by the leading makers of hot-rolled bars, if generally observed, is likely to mean higher prices for cold-finished bars. An Eastern maker still is quoting 3.15c. base, but local makers continue to hold to 3.25c. base. Ground shafting remains at 3.65c. base, f.o.b. mill, for carload lots.

Coke and Coal.—Curtailement of beehive oven coke production has not yet been sufficient to cause any strengthening in prices. Furnaces which did not contract for their third quarter requirements now seem disposed to buy for shorter periods, because of the uncertain pig iron situation. There is some anxiety on the part of several producers for business and while they are quoting \$5 for either July or third quarter business, the most recent business for these periods was at \$4.75 and it is believed that price still can be done. The spot market on furnace coke also is quotable at \$4.75 to \$5, although lately it has been a little hard to pick up strictly standard coke at the lower figure. Foundry coke still ranges from \$5.50 to \$6 per net ton at ovens for spot and \$6.50 to \$7 on last half contracts. There has been some revising on early third quarter contracts for furnace coke, whereby purchasers will be called upon to pay \$6 instead of \$7, the price originally agreed upon; it is claimed this reduction will not help the pig iron producer and that eventually the contracts carrying a price above \$5 will be reduced to that figure. The coal market remains very dull and prices are soft. Mine run steam coal still is priced at \$1.75 to \$2 per net ton at mines for spot delivery, while mine run gas and coking coal is at about \$2.25. Steam slack is firmer at \$1.25, but gas slack is a drug on the market at \$1.40.

Old Material.—Only appraisals of the value of old material can be made this week since mill buying has virtually ceased and with no sales of consequence upon which to base them, quotations represent what might be done. We make sharp reductions in prices of all grades. Heavy melting steel is quoted at \$18.50 to \$19 as compared with \$20 and \$20.50 last week and a corresponding cut is made in other so-called open-hearth grades. Steel plants are well stocked and purchases are restricted by the fear of getting supplies at a price above the ultimate bottom. Recent sale of machine shop turnings in this district at \$12, although it represented a "distress" tonnage, which had to be moved regardless of the price, seems to have fixed the price idea of the leading consumers of this grade at \$12. Dealers are unable or unwilling to go below \$13; so on the basis of bids and offers the market is quotable on this material at from \$12 to \$13. Norfolk & Western Railway will receive bids until noon, July 18, on 9150 gross tons of old material.

We quote for delivery to consumers' mill in the Pittsburgh and other districts taking the Pittsburgh freight rate as follows:

Per Gross Ton	
Heavy melting steel.....	\$18.50 to \$19.00
No. 1 cast, cupola size.....	21.50 to 22.00
Rails for rolling, Newark and Cambridge, Ohio; Cumberland, Md.; Huntington, W. Va., and Franklin, Pa.....	19.00 to 20.00
Compressed sheet steel.....	17.50 to 18.00
Bundled sheet sides and ends....	16.00 to 16.50
Railroad knuckles and couplers..	21.50 to 22.00
Railroad coil and leaf springs..	21.50 to 22.00
Low phosphorus standard bloom and billet ends.....	23.50 to 24.00
Low phosphorus plates and other grades	22.50 to 23.00
Railroad malleable.....	19.00 to 19.50
Steel car axles.....	22.00 to 22.50
Cast iron wheels.....	20.50 to 21.00
Rolled steel wheels.....	21.50 to 22.00
Machine shop turnings.....	12.00 to 13.00
Heavy steel axle turnings	15.50 to 16.00
Short shoveling turnings.....	15.50 to 16.00
Cast iron borings	15.50 to 16.00
Heavy breakable cast	17.50 to 18.00
Stove plate	15.00 to 15.50
Sheet bar crop ends.....	22.00 to 23.00
No. 1 railroad wrought.....	15.00 to 15.50

Chicago

Buying of Steel Is Light, but Specifying Is Heavy—Pig Iron Prices Lower

CHICAGO, July 10.—Buying of finished steel is light, but users are specifying fully against their contracts. With very few requests for cancellations or suspensions, local mills with their comfortable backlogs are not greatly concerned about the limited amount of new business. It is to be noted that the market is not entirely devoid of encouraging features and as the customarily quiet summer season passes, bookings are expected to pick up again.

Prospects for further oil storage tank business are bright and continued rail buying is looked for. Fabricating awards for the week were numerous, though individually small, and a plant for the Ford Motor Co. at St. Paul, on which early action is expected, involves 7500 tons. Local prices on finished steel are generally firm and will probably remain unchanged in view of the satisfactory condition of the mills' order books.

Summer weather conditions are commencing to affect mill operations adversely, the output of finished products for the Inland Steel Co. having dropped to 65 per cent of capacity. The Illinois Steel Co., on the other hand, is producing steel at the rate of 97 per cent of ingot capacity and is still operating all of its 27 steel works blast furnaces.

Pig Iron.—The market is weak and exceedingly quiet, and local iron is now quoted at \$28 to \$28.50, furnace. Producers apparently prefer to curtail their operations rather than pile iron, one of the Mayville furnaces having been blown out last week. Heretofore one of the most encouraging aspects of the market has been the sustained consumption of iron in this territory, but recent advices indicate that certain classes of melters, notably jobbing foundries, implement manufacturers and sanitary ware makers, are reducing their operations. Among the few sales reported may be mentioned 300 tons of foundry bought by a northern Illinois melter for last half delivery and 250 tons of foundry purchased by a Wisconsin user for third quarter. Little interest has been manifested in Southern iron, but it is intimated that an attractive inquiry might bring out a concession from the present minimum of \$25, base Birmingham. Although a few resale lots of charcoal have moved at concessions, producers are holding firmly to \$33.50, base furnace. No sales at that price are reported, however. An inquiry from Kentucky calls for 150 tons of Lake Superior charcoal.

Quotations on Northern foundry high phosphorus malleable and basic irons are f.o.b. local furnace and do not include an average switching charge of 61c. per ton. Other prices are for iron delivered at consumers' yards or when so indicated, f.o.b. furnace other than local.

Lake Superior charcoal, averaging sil. 1.50, delivered at Chicago..	\$36.65
Northern coke, No. 1, sil. 2.25 to 2.75	\$28.50 to 29.00
Northern coke, foundry No. 2, sil. 1.75 to 2.25	28.00 to 28.50
Malleable, not over 2.25 sil.	28.00 to 28.50
Basic	28.00 to 28.50
High phosphorus	28.00 to 28.50
Southern No. 2	31.01
Low phos., sil. 1 to 2 per cent, copper free	\$36.00 to 37.00
Silvery, sil. 8 per cent (nominal)	43.29

Ferroalloys.—Foreign producers are now offering ferromanganese at \$117.50, seaboard. No sales are reported here.

We quote 80 per cent ferromanganese, \$125.06 to \$130.06 for all deliveries; 50 per cent ferrosilicon, \$92.50, delivered; spiegeleisen, 18 to 22 per cent, \$53.58, delivered.

Structural Material.—While fabricators are booking less tonnage in the aggregate, lettings for the week were numerous, ranging from 100 to 400 tons each. Among prospective projects the new Ford Motor Co. plant at St. Paul stands out prominently. This work will involve 7500 tons and bids on the general contract will be taken July 12.

The mill quotation on plain material is 2.60c. to 2.70c., Chicago. Jobbers quote 3.30c. for plain material out of warehouse.

Plates.—Oil tank business continues to be a feature of the market. A local tank builder is inquiring for 10,000 tons of plates and a Southwestern fabricator who is in the market for several thousand tons has been unable to obtain desired delivery from Chicago mills. Railroad car buying is still light, but for orders placed during the past week it is expected that at least 5000 tons of material will be bought here. Prices are firm and unchanged.

The mill quotation is 2.60c. to 2.80c., Chicago. Jobbers quote 3.30c. for plates out of stock.

Bars.—Demand for soft steel bars shows no change, with buying limited, but with specifications as free as ever. Local mills have comfortable backlogs, so that prices are expected to remain steady at present levels. New business in bar irons continues to fall short of shipments, but prices are fairly well maintained at a minimum of 2.50c., Chicago mill, and occasional orders are taken at as high as 2.60c. Bookings in hard steel bars, while not heavy, are sufficiently large to hold prices firmly to the 2.30c. level.

Mill prices are: Mild steel bars, 2.50c. to 2.60c., Chicago; common bar iron, 2.50c. to 2.60c., Chicago; rail steel, 2.30c., Chicago mill.

Jobbers quote 3.20c. for steel bars out of warehouse. The warehouse quotation on cold-rolled steel bars and shafting is 4.55c. for rounds and 5.05c. for flats, squares and hexagons.

Jobbers quote hard and medium deformed steel bars at 3.15c. base; hoops, 4.55c.; bands, 3.95c.

Wire Products.—New orders showed a slight increase during the week and when added to specifications against contracts constituted a very satisfactory tonnage for the dull season of the year. Demand for nails is still heavy in the large manufacturing centers, although it has declined in the agricultural districts. Production is substantially unchanged and prices are firm. For mill prices, see finished iron and steel f.o.b. Pittsburgh, page 112.

We quote warehouse prices f.o.b. Chicago: No. 6 to No. 9 bright basic wire, \$3.90 per 100 lb.; extra for black annealed wire, 15c. per 100 lb.; common wire nails, \$3.95 per 100 lb.; cement coated nails, \$3.25 per keg.

Cast-Iron Pipe.—There continues to be a scarcity of small sizes and prices are strong, ranging from \$52 Birmingham, up. The situation in the larger diameters, however, is steadily growing easier and prices are accordingly more flexible. The United States Cast Iron Pipe & Foundry Co. has taken orders for 3000 tons of 30-in. for Long Beach, Cal., 800 tons of county work, Painesville, Ohio, and 300 tons of six-to 12-in. for Little Chute, Wis. Joliet, Ill., has postponed action on 300 tons of 6- to 10-in. Minneapolis takes bids today on 2000 tons of 6- to 16-in. Chicago will receive tenders on 570 tons of 8-in. July 16. Wilmette, Ill., has let the general contract for one mile of 12-in., but the pipe has not yet been bought by the successful bidder. The same is true of three miles of 6- and 8-in. for Homewood, Ill.

We quote per net ton, f.o.b. Chicago, as follows: Water pipe, 4-in., \$64.20; 6-in. to 12-in., \$60.20; above 12-in., \$58.20 to \$59.20; class A and gas pipe, \$5 extra.

Bolts and Nuts.—Specifications against third quarter contracts are fairly numerous, although involving small amounts. New business in aggregate still falls short of output and prices are not altogether steady. Shading cannot be characterized as general, however, being of a sporadic nature. Ruling discounts are those shown on page 112, except that for delivery in this territory they are f.o.b. Chicago.

Jobbers quote structural rivets, 4c.; boiler rivets, 4.10c.; machine bolts up to $\frac{3}{4}$ x 4 in., 45 and 5 per cent off; larger sizes, 45 and 5 off; carriage bolts up to $\frac{3}{4}$ x 6 in., 40 and 5 off; larger sizes, 40 and 5 off; hot pressed nuts, squares and hexagons, tapped, \$2.50 off; blank nuts, \$2.50 off; coach or lag screws, gimlet points, square heads, 50 and 5 per cent off.

Reinforcing Bars.—There have been a number of large lettings during the week, foremost among them being 1300 tons for a medical school and hospital at the University of Rochester, Rochester, N. Y., which will be constructed by a Chicago contractor. Sellers are encouraged by the buoyancy of building activity, but are somewhat concerned because of a decline in the

number of small orders, the aggregate of which was great in the early months of the year. The price situation is substantially unchanged.

Awards include:

Medical school and hospital for University of Rochester, Rochester, N. Y., 1300 tons to Corrugated Bar Co.
Power plant, South Bend, Ind., 500 tons to Kalman Steel Co.

Stewart-Warner Speedometer Corporation, plant addition, Chicago, 700 tons to Barton Spiderweb System Co.

State reformatory building, Pendleton, Ind., 150 tons to Corrugated Bar Co.

Northwestern Packing Co. plant, Chicago, 100 tons to Truscon Steel Co.

Illinois State bridge work, 100 tons to Kalman Steel Co.
School building, Ely, Minn., 200 tons to Corrugated Bar Co.

Veterans' hospital, St. Cloud, Minn., 250 tons to Cowin & Co., Inc.

Sheets.—New business is light, probably too light to develop any weakness in prices if there be any. It is apparent that local mills, which are booked through the third quarter, have taken care of the requirements of a large portion of the users in this territory.

Mill quotations are 3.85c. for No. 28 black, 3c. for No. 10 blue annealed and 5c. for No. 28 galvanized, all being Pittsburgh prices, subject to a freight rate to Chicago of 34c. per 100 lb.

Jobbers quote f.o.b. Chicago, 4.35c. for blue annealed, 5.20c. for black and 6.35c. for galvanized.

Old Material.—Outside of a purchase of 10,000 tons of heavy melting by a local mill at a reported price of \$17.75 delivered, there has been no activity to speak of in the market. Prices are weak, but few declines have been recorded, probably because of the small amount of trading. Railroad offerings include the Great Northern, 1500 tons, and the Chicago Great Western 750 tons.

We quote delivery in consumers' yards, Chicago and vicinity, all freight and transfer charges paid, as follows:

Per Gross Ton	
Iron rails	\$22.00 to \$22.50
Cast iron car wheels	21.00 to 21.50
Relaying rails, 56 and 60 lb.	28.50 to 29.50
Relaying rails, 65 lb. and heavier	32.00 to 35.00
Rolled or forged steel car wheels	21.00 to 21.50
Rolls for rolling	18.00 to 18.50
Steel rails, less than 3 ft.	19.50 to 20.00
Heavy melting steel	17.25 to 17.75
Frogs, switches and guards cut apart	17.25 to 17.75
Shoveling steel	17.00 to 17.50
Drop forge flashings	12.50 to 13.00
Hydraulic compressed sheets	15.00 to 15.50
Axle turnings	14.50 to 15.00

Per Net Ton	
Iron angle and splice bars	22.50 to 23.00
Steel angle bars	16.00 to 16.50
Iron arch bars and transoms	22.50 to 23.00
Iron car axles	26.00 to 26.50
Steel car axles	19.50 to 20.00
No. 1 busheling	13.50 to 14.00
No. 2 busheling	11.00 to 11.50
Cut forge	15.00 to 15.50
Pipes and flues	11.50 to 12.00
No. 1 railroad wrought	15.00 to 15.50
No. 2 railroad wrought	15.00 to 15.50
Steel knuckles and couplers	19.00 to 19.50
Coil springs	20.50 to 21.00
No. 1 machinery cast	20.50 to 21.00
No. 1 railroad cast	19.25 to 19.75
No. 1 agricultural cast	19.25 to 19.75
Low phos. punchings	17.00 to 17.50
Locomotive tires, smooth	16.00 to 16.50
Machine shop turnings	10.00 to 10.50
Cast borings	12.50 to 13.00
Short shoveling turnings	12.50 to 13.00
Stove plate	15.00 to 15.50
Grate bars	13.00 to 13.50
Brake shoes	14.00 to 14.50
Railroad malleable	20.50 to 21.00
Agricultural malleable	20.00 to 20.50

Warehouse Prices.—Local jobbers' quotations are unchanged, although it is expected that the extras on bars and bar size shapes will be advanced in conformity with the increases in the extras recently made by the mills.

Rails and Track Supplies.—The Illinois Central has made a tentative reservation of rolling space for 60,000 tons of rails. About half of the tonnage, which will go to the road's Southern lines and to its subsidiary, the Central of Georgia, will be rolled by the Tennessee mill, while the remainder will be produced here. The Burlington is in the market for approximately 40,000 tons, and a number of other lines, including the Nickel Plate and the Pennsylvania, are estimating their requirements for 1924, although they

have not yet reached the point of putting out inquiries. The Pere Marquette, which has been in the market for about 5000 tons, may buy relayers. There are a considerable number of miscellaneous orders and inquiries for track supplies, most of them small. One inquiry from a Western road, however, calls for 5000 kegs of spikes. Orders for fully 10,000 rolled steel wheels have been closed or are at the point of being closed by the Gary mill.

Standard Bessemer and open-hearth rails, \$43; light rails, rolled steel, 2.25c., f.o.b. makers' mills.

Standard railroad spikes, 3.25c. mill; track bolts with square nuts, 4.25c. mill; iron tie plates, 2.85c. mill; steel tie plates, 2.60c., f.o.b. mill; angle bars, 2.75c., f.o.b. mill.

Jobbers quote standard spikes out of warehouse at 3.90c. base and track bolts, 4.90c. base.

Buffalo

Some Improvement in Inquiry for Pig Iron, but Not in Sales

BUFFALO, July 10—A few sellers of pig iron find improvement in inquiry but sales have not been heavier. One office reports between 10,000 and 12,000 tons of various grades of foundry iron inquired for, including one for 1500 tons and another for 1000 tons. The usual asking prices range from \$26 to \$27, with \$25 reported. The Gould Coupler Co. has filled the malleable and basic on which prices were sought two weeks ago. There is considerable testing going on; a number of producers get inquiries that involve tonnages for third quarter use but the actual purchase that develops from the quotation is only sufficient for present needs. The second largest producer has very little iron for third quarter offering. The number of carload to 100-ton sales have been up to the average. Unless unlooked for demand in malleable iron develops, the Donner Steel Co. will not produce any of this grade in the third quarter.

We quote f.o.b. per gross ton Buffalo as follows:

No. 1 foundry, 2.75 to 3.25 sil.	\$27.00 to \$28.00
No. 2X foundry, 2.25 to 2.75 sil.	26.50 to 27.50
No. 2 plain, 1.75 to 2.25 sil.	26.00 to 27.00
Basic	26.00 to 26.50
Malleable	26.00 to 26.50
Lake Superior charcoal	36.78

Finished Iron and Steel.—Prices on black sheets for shipment into Canada have been shaded by one mill and 3.75c. has been quoted to several buyers in that territory. Generally, inquiry has been lively but not to the point that would indicate a buying movement. Bars are firm at 2.40c. and shapes and plates at 2.50c. Demand is about evenly spread for bars, shapes and plates. Consumers' stocks are low. Demand for tin plate is not as brisk as in June, but has not fallen off to a discouraging point. Better deliveries on wire and nails are being made as manufacturers make inroads on current orders.

We quote warehouse prices, Buffalo, as follows:

Structural shapes, 3.65c.; plates, 3.65c.; soft steel bars, 3.55c.; hoops, 4.65c.; bands, 4.35c.; blue annealed sheets, No. 10 gage, 4.45c.; galvanized steel sheets, No. 28 gage, 6.35c.; black sheets, No. 28 gage, 5.25c.; cold rolled round shafting, 4.70c.

Old Material.—Prices are softer and the market is stagnant. Railroad lists closed last week brought \$20 to \$21 for heavy melting steel Valley district. Stock piles are at their lowest ebb and while some buying is expected it will be for such tonnages as cover immediate needs rather than ahead.

We quote f.o.b. gross ton Buffalo as follows:

Heavy melting steel	\$20.00 to \$21.00
Low phos., 0.04 and under	24.00 to 25.00
No. 1 railroad wrought	17.00 to 18.00
Car wheels	17.50 to 18.50
Machine shop turnings	13.00 to 14.00
Cast iron borings	15.00 to 16.00
No. 1 busheling	17.50 to 18.50
Stove plate	17.50 to 18.00
Grate bars	17.00 to 17.50
Bundled sheet stampings	12.00 to 13.00
No. 1 machinery cast	20.00 to 21.00
Hydraulic compressed	17.00 to 18.00
Railroad malleable	21.00 to 22.00

New York

Pig Iron Dull and Weak—Buying of Finished Materials Not Expected This Month

NEW YORK, July 10.—The pig iron market is extremely dull and so demoralized as to prices that it is impossible to quote the market accurately. Irregularities apply particularly to the Buffalo market, where it seems to be fairly well established that \$25 can be done on No. 2 plain and that it is necessary to pay very little, if any, more for silicon running as high as 3.25. In fact, the selling of high silicon irons at the same price as No. 2 plain is a feature of the present situation. In eastern Pennsylvania the base price is not more than \$27, and reports of \$26.50 are heard. In Virginia \$27 is the nominal quotation, with no transactions reported. Very little of the inquiry which recently has been pending has been placed. The Gould Coupler Co. has contracted for 1000 tons of basic and 500 tons of malleable for last quarter. An air brake company has bought only a part of the tonnage for which it was inquiring. The Ingersoll-Rand Co. withdrew its inquiry for foundry which has been pending for several weeks and purchased 500 tons of malleable. A New Jersey melter is in the market for 1200 tons of off-malleable, 700 tons of which is for the last four months of this year and 500 tons for the first quarter of next year. Another New Jersey melter is in the market for 200 tons of No. 1X foundry for delivery in the last quarter of this year. A foundry at Elizabethport, N. J., has bought 200 tons for prompt delivery, silicon analyzing 1 to 1.50. The Gilbert & Barker Mfg. Co., Springfield, Mass., is inquiring for 650 tons analyzing 2.25 to 2.75 silicon and 400 tons analyzing 2.75 to 3.25.

We quote delivered in the New York district as follows, having added to furnace prices \$2.27 freight from eastern Pennsylvania, \$4.91 from Buffalo and \$5.44 from Virginia:

East. Pa. No. 1 fdy., sil. 2.75 to 3.25	\$29.27
East. Pa. No. 2X fdy., sil. 2.25 to 2.75	29.27
East. Pa. No. 2 fdy., sil. 1.75 to 2.25	29.27
Buffalo, sil. 1.75 to 2.25	\$29.91 to 30.91
No. 2X Virginia, sil. 2.25 to 2.75	32.94
No. 2 Virginia, sil. 1.75 to 2.25	32.44

Ferroalloys.—Effective today, British producers of ferromanganese reduced their price from \$125, seaboard, to \$117.50, the duty being included in this quotation. This price nets the British producer around \$84. No sales have been made at this level. The market is exceedingly inactive with almost no contract business reported and such sales as have been made confined to carload lots of alloy by dealers at \$120. Steel makers are apparently well covered and are taking the alloy on contract in full measure. The spiegeleisen market is also exceedingly inactive. Quotations are unchanged at \$45, furnace, for the 20 per cent alloy and \$44 for the lower grade. One carload of imported British spiegeleisen has sold during the week at \$51, seaboard. It is difficult to ascertain the minimum price at which 50 per cent ferrosilicon can be bought, as low as \$84, delivered, being rumored. Demand, however, is confined to small and carload lots, most consumers being governed by contracts at higher prices.

Cast Iron Pipe.—Owing to labor shortage some shops which could easily run at 100 per cent are operating at only 80 per cent capacity. Deliveries for the most part cannot be made before November. We quote per net ton, f.o.b. New York in carload lots, as follows: 6-in. and larger, \$62.30; 4-in. and 5-in., \$67.30; 3-in. \$77.30, with \$5 additional for Class A and gas pipe. We quote soil pipe discounts of both Southern and Northern makers, f.o.b. New York in carload lots, as follows: 6-in. standard, 18 and 20% per cent off list; heavy, 28 to 30% per cent off list.

Finished Iron and Steel.—Sales representatives of steel companies seem to discern a slightly better feeling among consumers. This is frequently expressed in terms of greater confidence in the stability of steel prices, which some believed a month or so ago would

not hold at present levels. Although mills are now pressing their customers harder for tonnage than at any time this year, there is little, if any, disposition to shade prices. While occasional cuts have been made, as, for example, by one mill on structural shapes and by a few mills on black sheets, the steel price structure remains fairly sound. Consumers, however, are not greatly interested in new commitments, as most of them have sufficient steel coming to them on contracts entered into during the first half of the year to carry them well into the third quarter. Sellers do not expect any marked increase in demand before August. In structural steel there is very little of size up for bids except a new manufacturing building for the Western Electric Co. at Kearny, N. J., which will require 2000 tons. Two large projects on which bids have been taken, a bridge for the Central Railroad of New Jersey, taking 22,000 tons, and the New York approach to the New York-New Jersey vehicular tunnel, 4500 tons, have not yet been acted upon so far as steel lettings are concerned. Railroad equipment buying has reached the low point of the year thus far.

We quote for mill shipments, New York delivery, as follows: Soft steel bars, 2.74c. to 2.84c.; plates and structural shapes, 2.84c.; bar iron, 2.74c.

Warehouse Business.—Although the seasonal slackening is still in evidence, business is fair. Considerable pricecutting still persists in sheets, tending to produce softness. This situation, however, is regarded as temporary. Mill prices hold firm. Deliveries appear to be catching up in most products. The new classification on net extras on bars and shapes adopted by the mills last week has been adopted by the warehouses. Most of the extras by this classification have been increased, rounds and squares approximately doubled, and flats, angles, etc., approximately 50 per cent. Although as low as 4.45c. has been done on No. 18 soft black sheets, it is generally agreed that at the present mill prices warehouse sales should be considerably higher to leave a fair margin of profit. Inquiries for spring steel have been fairly numerous but they are small. High speed steel maintains the same moderate activity. Deliveries in wrought iron and steel pipe show scant improvement and one large dealer predicts that no change in prices of these will be made this year. A drop of 3c. is noted in No. 1 solder and 3½c. in refined. Straits pig tin also receded 1c. and bar tin 2c. Price quotations appear on page 128.

Coke.—The coke market is somewhat firmer, but the reason for this is not clear. Connellsville furnace coke is quoted at \$5 for prompt shipment and foundry at \$5.75 to \$7. Quotations on standard furnace grades range from \$5 to \$5.50. By-product is quoted \$11.34 to \$11.41, Newark and Jersey City points.

Old Material.—With very few consumers in the market dealers are making few offers for old material. Prices are weak and are off at least 50c. a ton on most grades as compared with a week ago. There seems to be plenty of scrap for all demands.

Buying prices per gross ton, New York, follow:

Heavy melting steel, yard	\$13.00 to \$13.50
Steel rails, short lengths, or equivalent	13.50 to 14.00
Rails for rolling	16.00 to 18.00
Relaying rails, nominal	25.00 to 26.00
Steel car axles	20.00 to 21.00
Iron car axles	25.00 to 26.00
No. 1 railroad wrought	16.50 to 17.00
Wrought iron track	15.50 to 16.00
Forge fire	12.50 to 13.00
No. 1 yard wrought, long	15.00 to 15.50
Cast borings (clean)	12.50 to 13.00
Machine-shop turnings	11.00 to 11.50
Mixed borings and turnings	10.50 to 11.00
Iron and steel pipe (1 in. diam., not under 2 ft. long)	10.50 to 11.00
Stove plate	12.75 to 13.25
Locomotive grate bars	13.00 to 13.50
Malleable cast (railroad)	18.00 to 19.00
Cast-iron car wheels	17.00 to 18.00

Prices which dealers in New York and Brooklyn are quoting to local foundries per gross ton follow:

No. 1 machinery cast	\$20.50 to \$21.00
No. 1 heavy cast (columns, building materials, etc.) cupola size	19.50 to 20.00
No. 1 heavy cast, not cupola size	17.50 to 18.00
No. 2 cast (radiators, cast boilers, etc.)	15.50 to 16.00

Boston

Pig Iron Buyers Sit Tight While Furnaces Bid for Business

BOSTON, July 10.—Pig iron buyers the past week continued to sit tight while furnaces shaded prices. Actual business closed was negligible. Most Virginia furnaces reduced the base price from \$28 to \$27. Other interests cut the price from \$27.50 to \$27. Virginia iron, however, is still out of line with eastern Pennsylvania and Buffalo, competition between the last two for business in this territory being acute. One buyer maintains two eastern Pennsylvania furnaces offer malleable and No. 2X foundry at \$26.50 furnace or \$30.15 delivered. The statement cannot be substantiated. It is evident, however, silicon 1.75 to 2.25 can be obtained at \$27 furnace, and No. 2X at \$27.50, or \$30.65 and \$31.15 delivered, respectively. Eastern Pennsylvania furnaces, as prices drop, are endeavoring to maintain differentials. This policy does not apply to Buffalo No. 2 plain and No. 2X, the general tendency being to accept firm offers of \$27. The Alabama iron market is purely nominal, furnaces not competing for business in this territory. Inquiries, without tonnages specified, are increasing as prices decline. Buyers have in mind that pig iron is practically on last February's basis, when a buying movement started. Advices received from eastern Pennsylvania are that furnaces will go out of blast if prices recede further.

We quote delivered prices on the basis of the latest reported sales as follows, having added \$3.65 freight from eastern Pennsylvania, \$4.91 from Buffalo, \$5.92 from Virginia, and \$9.60 from Alabama.

East. Penn., sil. 2.25 to 2.75.....	\$31.15 to \$32.15
East. Penn., sil. 1.75 to 2.25.....	30.65 to 31.65
Buffalo, sil. 2.25 to 2.75.....	31.91 to 32.91
Buffalo, sil. 1.75 to 2.25.....	31.91 to 32.41
Virginia, sil. 2.25 to 2.75.....	33.42
Virginia, sil. 1.75 to 2.25.....	32.92
Alabama, sil. 2.25 to 2.75.....	35.10 to 37.10
Alabama, sil. 1.75 to 2.25.....	34.60 to 36.60

Finished Material.—Further improvement in tonnages booked is reported by steel mill representatives. Specifications are general and call for shipment this month and in third quarter. Prices on bars, plates, sheets and structural steel hold steady. A noticeable increase is noted in the number of small construction jobs. Fabricating prices are fairly consistent. Large fabricators are well booked up and at least one is assured a sizable carryover into 1924. The New England construction outlook for late 1923 and for early 1924 is steadily growing more hopeful.

Coke.—A further increase in specifications against contract foundry coke, together with a freer movement of domestic coke, brought about by public uneasiness over the anthracite coal supply outlook this fall, has materially improved the position of New England by-product fuel makers. Doubts as to their ability to maintain present coking operations throughout the summer months are dispelled. In fact, they are reasonably assured good business the remainder of 1923, at least. Both the New England Coal & Coke Co., Boston, and the Providence Gas Co., Providence, R. I., quote foundry coke at \$13.50 delivered within the \$3.10 freight rate zone. Almost no interest is shown in Connellsville foundry coke. A slight increase is noted in business booked by foundries, which undoubtedly has some bearing on the increased movement of fuel.

Old Material.—Influenced by the completion of orders in brokers' hands, a lack of fresh mill buying, and the weakness in pig iron values, old material prices have slid off further, the average drop on all kinds of scrap being \$1.12 a ton the past week. Wrought pipe is flat, easily \$2 less, and evidently the weakest spot in the market. Other kinds of wrought material are practically as lifeless, yet not as soft as pipe. Prices on heavy melting steel take an unusually wide range. For extra selected stock, \$13.50 on cars is a nominal price. Car lots of desirable sized material sold the past day or two at \$12.50 shipping point. The best price large operators offer today is \$12. Holders of machine shop turnings, who would not accept \$11.50 on cars a week ago, since then have sold at \$10.50. Borings and

mixed borings and turnings are pressed for sale with few takers. Machinery cast is lower with other materials, although the amount available suitable for textile machinery foundries is comparatively small. A textile machinery maker the past week bought 300 tons No. 1 at \$23.50 delivered, off \$1. No market for stove plate exists in New England. For shipment to eastern Pennsylvania points, \$12 or \$12.50 on cars shipping point might be done.

The following prices are for gross ton lots delivered consuming points:

No. 1 machinery cast.....	\$23.00 to \$23.50
No. 2 machinery cast.....	21.00 to 21.50
Stove plate.....	11.00 to 12.00
Railroad malleable.....	24.00 to 24.50
Street car axles.....	22.00 to 22.50

The following prices are offered per gross ton lots f.o.b. Boston common rate shipping points:

No. 1 heavy melting steel.....	\$12.00 to \$13.50
No. 1 rail wrought.....	14.00 to 14.50
No. 1 yard wrought.....	12.00 to 12.50
Wrought pipe (1-in. in diam., over 2 ft. long).....	8.50 to 9.00
Machine shop turnings.....	10.00 to 10.50
Cast iron borings, rolling mill.....	11.00 to 11.50
Cast iron borings, chemical.....	13.50 to 14.00
Blast furnace borings and turnings.....	10.00 to 10.50
Forged scrap and bundled skeleton.....	10.50 to 11.00
Shafting.....	19.00 to 19.50
Street car axles.....	19.00 to 19.50
Rails for rerolling.....	14.50 to 15.00

St. Louis

Pig Iron Market Extremely Dull and Prices Are Weak

ST. LOUIS, July 10.—With the exception of an inquiry for several hundred tons of Northern iron for prompt shipment, there is no business before the seller of pig iron in this district. Melters simply will not buy. It is believed that they have enough iron on hand to take care of the business they have on their books, and are waiting for more orders before they buy more material. The stove foundries are beginning to let up preparatory to taking inventory. The price of Northern iron is nominally \$29, Chicago, but it is believed that an offer to take on a considerable tonnage would result in the cutting of this price to \$28, at which sales were made in this territory a week ago. The Southern market ranges from \$25 to \$27, Birmingham, most concerns quoting the higher price, at which, of course, but few sales are being made. The St. Louis Coke & Iron Co. is quoting \$29 to \$30, Granite City.

We quote delivered consumers' yards, St. Louis, as follows, having added to furnace prices \$2.16 freight from Chicago, \$3.28 from Birmingham (rail and water), \$5.17 from Birmingham, all rail, and 81 cents average switching charge from Granite City:

Northern fdy., sil. 1.75 to 2.25.....	\$30.16 to \$31.16
Northern malleable, sil. 1.75 to 2.25.....	30.16 to 31.16
Basic.....	30.16 to 31.16
Southern fdy., sil. 1.75 to 2.25.....	30.17

Finished Iron and Steel.—While fabricators are not placing any new orders for steel, they are more insistent in demanding shipments against contracts than they have been for some time. Jobbers are not placing any orders, but a few more inquiries are being received from them. Railroad inquiries are slowing down, the only new one being from the Missouri Pacific for last-half requirements (quantity not given) of nails, fence and wire. There is some interest here in the Masonic Temple, Muncie, Ind., which will require 300 tons of reinforcing bars.

For stock out of warehouse we quote: Soft steel bars, 3.35c. per lb.; iron bars, 3.35c.; structural shapes, 3.45c.; tank plates, 3.45c.; No. 10 blue annealed sheets, 4.45c.; No. 28 black sheets, cold rolled, one pass, 5.20c.; cold drawn rounds, shafting and screw stock, 4.45c.; structural rivets, 4.15c.; boiler rivets, 4.25c.; tank rivets, $\frac{7}{8}$ in. and smaller, 50-5 per cent off list; machine bolts, 45-5 per cent; carriage bolts, 40-5 per cent; lag screws, 50-5 per cent; hot pressed nuts, square or hexagon blank, \$2.50; and tapped, \$2.50 off list.

Coke.—A little better demand is reported for coke, although the market still is easy. Connellsville furnace coke has been sold at \$4.50 to \$5 and foundry grades at \$6.25 for spot shipments and \$7.50 on contracts.

Old Material.—The price list of old material was virtually unchanged this week, after weeks of steady

declines. And yet there is no buying by consumers, except where they can get a bargain. Dealers are buying only where it is necessary to supply material on contracts before they expire. Three new railroad lists are before the market: Mobile & Ohio, 2000 tons; Union Pacific, 1000 tons, and Kansas City Southern, 1000 tons.

We quote dealers' prices f.o.b. consumers' works, St. Louis industrial district and dealers' yards, as follows:

Per Gross Ton	
Iron rails	\$19.00 to \$19.50
Rails for rolling	17.50 to 18.00
Steel rails, less than 3 ft.	18.00 to 18.50
Relaying rails, 60 lb. and under	26.00 to 27.00
Relaying rails, 70 lb. and over	33.50 to 34.50
Cast iron car wheels	19.00 to 19.50
Heavy melting steel	16.50 to 17.00
Heavy shoveling steel	16.50 to 17.00
Frogs, switches and guards cut apart	17.00 to 17.50
Per Net Ton	
Heavy axles and tire turnings	12.75 to 13.25
Steel angle bars	15.25 to 15.75
Iron car axles	25.00 to 25.50
Steel car axles	19.00 to 19.50
Wrought iron bars and transoms	19.50 to 20.00
No. 1 railroad wrought	14.50 to 15.00
No. 2 railroad wrought	15.00 to 15.50
Railroad springs	19.00 to 19.50
Cast iron borings	12.50 to 13.00
No. 1 busheling	14.50 to 15.00
No. 1 railroad cast	17.00 to 17.25
No. 1 machinery cast	17.25 to 17.50
Railroad malleable	17.00 to 17.50
Machine shop turnings	11.50 to 12.00
Champion bundled sheets	9.50 to 10.00

Birmingham

Buyers Apathetic and Not Eager to Place Orders for Pig Iron at \$25

BIRMINGHAM, ALA., July 10.—The Birmingham pig iron market of several weeks' standing remains untested. The one company quoting \$25 had a little iron for third quarter left at the close of the week and was not in the fourth quarter market. A feature of the \$25 iron is that the trade was not in over-hurry to absorb it, showing the general listlessness of the buyer as well as attitude of hoping for lower prices. No big buyer had appeared on the scene and the market has not been put to the test. Selling in the East with prices as they are is not thought of. It is a game of watchful waiting with all makers well covered for third quarter, no cancellations and very small stocks. The Tennessee company blew out Oxmoor stack Monday. It was on foundry. The company now has only two stacks on foundry. No cause was assigned for blowing out. It was reported in Birmingham, Saturday, that a Tennessee maker was offering 1.75 to 2.25 and 2.25 to 2.75 silicon at the same flat price of \$24.50. Alabama has made and, yard stocks added, marketed 1,500,000 tons of iron in the first half of the year, an unprecedented record. Labor is not plentiful, but so far has caused no serious handicap in production by furnace banking or otherwise.

We quote per gross ton f.o.b. Birmingham district furnaces as follows:

Foundry, silicon 1.75 to 2.25	\$25.00
Basic	26.00
Charcoal, warm blast	34.00

Cast Iron Pipe.—The American Cast Iron Pipe Co. has taken 321 tons for Knox City, Tex.; 1043 tons for Longview, Wash., and 1509 tons for Bismarck, S. D. The base is \$49. Hickory, N. C., is expected in the market for 20 miles of 16-in. pipe. Sanitary pipe is slow at \$65.

Finishing Mills.—New steel business is seasonally slow, but wire drawing mills have bookings to capacity for two to three months, and are on full turn. The Tennessee company is on double turn at all finishing mills. Work was begun last week building the elevated short line ore railroad from Red Mountain to the blast furnaces at Bessemer and Ensley. It will prove a great economy in assemblage of raw material. The Conners Steel Co. awaits some machinery before resuming operations in its No. 2 mill, which was put temporarily out of commission by a fire.

Coal and Coke.—Coke is rallying since parties to old contracts have begun renewals, which are at base of \$8.

Spot coke is quoted at \$8.50. The DeBardeleben Coal Corporation, merger of the Empire, Corona and De Bardeleben Coal companies, is operative with H. T. DeBardeleben president.

Old Material.—The scrap market suffers from the same lassitude as the iron market. There are no suspensions and no cancellations, but very little new business.

We quote per gross ton f.o.b. Birmingham district yards, nominal prices, as follows:

Old steel rails	\$18.00 to \$20.00
No. 1 steel	16.00 to 18.00
No. 1 cast	23.00 to 24.00
Car wheels	23.00 to 24.00
Tramcar wheels	22.00 to 23.00
Stove plate	17.00 to 18.00
Cast iron borings	12.00 to 13.00
Machine shop turnings	12.00 to 13.00

Cincinnati

Pig Iron Prices Weak—Sale of Malleable to a Michigan Melter

CINCINNATI, July 10.—With the exception of one sale of 3000 tons of malleable to a Michigan melter, the market has been almost devoid of interest. Two large inquiries are current, one for 3000 tons of malleable for third quarter, and one of 2000 tons for last quarter. It is likely that both of these blocks will be bought within the next 10 days. Prices of Northern irons are weak, and on the sale mentioned above, it is said \$26.75, Ironton basis was done, though the iron will not be shipped from southern Ohio. This price has been made by southern Ohio furnaces, however, and on the two inquiries pending it is expected that slightly lower prices will develop. There is little activity in Southern irons. The L. & N. Railroad bought 1000 tons, and did not pay more than \$25, base, for the greater part of the tonnage. Some of this iron, of special analysis, went on a \$25.50 basis. With the continued dullness of the market, furnaces are piling the greater part of the make, and it is said that at least three furnaces in the southern Ohio district will bank or blow out within the next week or two, while a fourth is expected to go out at any time for relining.

Based on freight rates of \$4.05 from Birmingham and \$2.27 from Ironton, we quote f.o.b. Cincinnati:

Southern coke, sil. 1.75 to 2.25 (base)	\$29.05
Southern coke, sil. 2.25 to 2.75 (No. 2 soft)	29.55
Ohio silvery, 8 per cent.	40.77
Southern Ohio coke, sil. 1.75 to 2.25 (No. 2)	29.02
Basic Northern	29.02
Malleable	29.02

Finished Materials.—Orders generally are showing much improvement, but the larger buyers are noticeably out of the market, and the presumption is that they have sufficient material on hand to run them for some time. Some interest, however, is being shown in fourth quarter contracts, and the opinion of the trade generally is that present prices of finished products will be maintained throughout the last half, and even into the first quarter of next year. The only test of prices came last week on the inquiry of the Big Four Railroad for its third quarter requirements of steel. On approximately 1700 tons of plates and shapes, all quotations were on a 2.50c., Pittsburgh, basis, and on bars, 2.40c., Pittsburgh. On other items current prices also were quoted. There is little activity in sheets other than occasional orders for fill-in purposes, and mills generally are pretty well filled for third quarter. Some black sheets are available, from some of the smaller mills, and even some of the larger independents have small tonnages to offer for fairly early delivery. This probably accounts for the shading of prices on black. While there is little current demand for wire products, jobbers having contracts are urging the mills to make delivery, particularly of nails. Track accessories are rather quiet. In the building construction field the only project of consequence is the Cotton Exchange Building, Memphis, for which 800 tons of bars will be required. The William Powell Co., Cincinnati, will build an addition which will require about 150 tons of bars. In the structural field the largest new inquiry is from the

Peoria & Eastern Illinois Railroad, which is asking bids on 1285 ft. of viaduct work, estimated to require 1000 tons. An inquiry for 400 tons of plates is current for the Wilson Dam near Muscle Shoals, Alabama. The general contract for the Shriners' Temple, Nashville, has been awarded to Hugger Bros. Construction Co., Montgomery, Ala., and 700 tons of steel will probably be awarded this week to a Nashville fabricator. The Nashville Bridge Co. has been awarded 900 tons of steel for the municipal auditorium at Birmingham, Ala. Pending projects include an extension to the Havlin Hotel at Cincinnati, and bridge work for the Dix River Power Co., near Danville, Ky.

Warehouse Business.—Local jobbers report a slowing down in orders, but business is still considered good. Reinforcing bars are still in good demand, as well as small angles. Wire nails are moving well. There has been no change in prices.

Cincinnati jobbers quote: Iron and steel bars, 3.50c.; reinforcing bars, 3.60c.; hoops, 4.55c.; bands, 4.25c.; shapes, 3.60c.; plates, 3.60c.; cold-rolled rounds, 4.50c.; cold-rolled flats, squares and hexagons, 5c.; No. 10 blue annealed sheets, 4.25c.; No. 28 black sheets, 5.35c.; No. 28 galvanized sheets, 6.35c.; No. 9 annealed wire, \$3.60 per 100 lb.; common wire nails, \$3.60 per keg base.

Coke.—There is little activity in the coke market, most of the orders being carload lots for prompt shipment, though occasionally second half contracts are negotiated. Prices rule about the same as last week, Connellsville furnace being quoted at \$5 and foundry \$5.50 to \$6.50. New River foundry is \$11 to \$13, Wise County furnace \$6 and foundry \$7. By-product quotations are unchanged at \$9 to 9.50, Connellsville.

Old Material.—Only scattered carload sales of scrap are reported, and these are confined almost entirely to foundry grades. Steel mills are entirely out of the market. Dealers are buying for yard stocks, and there is a feeling that the bottom of the market has about been reached. Some grades have declined 50c., while prices of others remain at about the same level as last week.

We quote dealers' buying prices, f.o.b. cars Cincinnati:

Per Gross Ton	
Bundled sheets	\$12.50 to \$13.00
Iron rails	15.50 to 16.00
Relaying rails, 50 lb. and up	28.00 to 28.50
Rails for rolling	16.50 to 17.00
Heavy melting steel	15.50 to 16.00
Steel rails for melting	15.00 to 15.50
Car wheels	16.00 to 16.50
Per Net Ton	
No. 1 railroad wrought	12.50 to 13.00
Cast borings	11.00 to 11.50
Steel turnings	9.50 to 10.00
Railroad cast	17.00 to 17.50
No. 1 machinery cast	20.50 to 21.00
Burnt scrap	12.50 to 13.00
Iron axes	23.00 to 23.50
Locomotive tires (smooth inside)	13.50 to 14.00
Pipes and flues	10.50 to 11.00

Detroit Scrap Market

DETROIT, July 7.—Melters in this district in many cases have about completed contracts for pig iron, but are delaying further purchases as long as possible. The melt in automotive lines will in all probability be increased over the present basis the latter part of the month, most factories having completed patterns for change of models. Stove manufacturers have been closed down for the week, due to the midweek holiday, and have taken advantage of this period for necessary repairs to cupolas. Little interest is being shown in old material, with the market having all the tendencies of a buyers' market with turnings very low.

The following prices are quoted on a gross ton basis f.o.b. cars producers' yards, excepting stove plate, automobile and No. 1 machinery cast, which are quoted on a net ton basis:

Heavy melting steel	\$15.00 to \$17.00
Shoveling steel	15.00 to 17.00
No. 1 machinery cast	18.00 to 20.00
Cast borings	12.50 to 13.00
Automobile cast scrap	22.00 to 24.00
Stove plate	15.00 to 17.00
Hydraulic compressed	14.00 to 15.00
Turnings	7.50 to 8.00
Flashings	10.00 to 11.00

Cleveland

Pig Iron Market Weaker—Improved Demand, but Lower Prices for Bolts and Nuts

CLEVELAND, July 10.—Sales of four small lots of Lake Superior ore aggregating about 30,000 tons were made during the week. While some consumers have not purchased all the ore that they are expected to need for the year, the present condition of the pig iron market does not encourage early buying and sellers look for little business before September.

Pig Iron.—The market generally is weaker, but there is not sufficient activity to test prices and there is considerable uncertainty as to what quotations round lot inquiries would bring out. The Valley price on foundry iron has further sagged to \$26 and some consumers seem convinced that they will be able shortly to buy at \$25. Locally the market is unchanged at around \$27 to \$27.50 at furnace, the \$27 price being low enough to shut out Valley iron at \$26. Sales during the week were very light, purchases in this territory being confined to small lots as needed. This hand to mouth policy is being followed by large as well as small consumers. One Cleveland interest reports sales during the week mostly from a western New York furnace for Eastern shipment aggregating 5000 tons of foundry and malleable iron, at \$27.25 at furnace. However, the Buffalo market is no longer above \$27 and that price could probably be shaded. A lake furnace reports sales of several lots aggregating 1000 tons. The Link Belt Co. is inquiring for 3000 tons of malleable iron for its Indianapolis plant for August and September shipment, this being the only inquiry of any size pending. Most foundries are taking their iron in good volume on contracts. Generally foundries do not appear to be operating so fully as they were a few weeks ago, although there has been no slowing down in the demand for iron from automobile foundries. Low phosphorus iron has declined \$1 a ton. Iron in various grades is being offered by steel makers, which is having some effect on the price situation. A number of merchant furnaces are piling iron and several are expected to go out of blast this month.

Quotations below, except on basic and low phosphorus iron, are delivered Cleveland, and for local iron include a 50c. switching charge. Ohio silvery and Southern iron prices are based on a \$3.02 freight rate from Jackson and \$6 rate from Birmingham:

Basic, Valley furnace	\$25.25 to \$25.50
Northern No. 2 fdy., sil. 1.75 to 2.25	27.50 to 28.00
Southern fdy., sil. 1.75 to 2.25	31.00 to 31.50
Malleable	27.50 to 28.00
Ohio silvery, 8 per cent.	27.50 to 28.00
Standard low phos., Valley furnace	34.00

Iron Ore Stocks.—The heavy ore movement during June resulted in an increase in stocks at the Lake Erie docks to 4,511,791 gross tons on July 1 as compared with 4,347,271 tons on June 1. The dock balance on July 1 last year was 6,753,991 tons. Receipts at Lake Erie ports during June were 7,173,028 tons and for the season 11,437,482 tons. Shipments from these docks for the same periods were 5,590,611 tons and 11,485,299 tons respectively.

Semi-Finished Steel.—Most sheet mills are under contract for sheet bars for the third quarter and a number of these have released July specifications. Inquiry is exceedingly light. Sheet bars, billets and slabs are freely offered at \$42.50 for early shipment.

Finished Steel.—Mills are getting a fair volume of specifications on contracts and consumers as a rule are taking all the steel due them on old orders, but new business is light and limited to small orders. Prices are firm at 2.40c. for steel bars and 2.50c. for plates and structural material and mills able to make quick shipments are still able to book small lots of plates and shapes at from \$1 to \$2 above the regular price and, in the case of Eastern mills, the higher price is quoted at mill. The only weakness in the market appears to be in hot-rolled strip steel, which has sold down to 2.75c. for wide sections. For the narrow width 3.15c. is the common price. The demand for hot-rolled strip

has fallen off materially as a result of a decline in the demand from the automobile industry and some of the larger producers are getting well caught up on deliveries. Michigan automobile companies with the exception of some of the smaller car builders are keeping close to their June production schedules, but some, apparently in anticipation of its slowing down, are reducing their inventories and consequently are not ordering steel as freely as last month. For this reason some of the manufacturers of alloy steels have curtailed production. Lake shipyards have received new inquiries for boats. At present lake vessels are pending involving 20,000 to 25,000 tons of plates and structural material. In the building field, little new work is coming out, but fabricators look for a good volume of business in the fall.

Jobbers quote steel bars, 3.36c.; plates and structural shapes, 3.46c.; No. 9 galvanized wire, 3.70c.; No. 9 annealed wire, 3.25c.; No. 28 black sheets, 4.65c.; No. 28 galvanized sheets, 5.80c.; No. 10 blue annealed sheets, 3.75c. to 4.06c.; cold rolled rounds, 3.90c.; flats, squares and hexagons, 4.40c.; hoops and bands, 1 in. and wider and 20 gage or heavier, 4.16c.; narrower than 1 in. or lighter than No. 20 gage, 4.60c.

Bolts, Nuts and Rivets.—Bolt and nut manufacturers report an improvement in the demand, which has been rather slow for a few weeks. Consumers, however, are rather cautious in placing contracts. Prices are not firm and concessions of 10 per cent are being made by some manufacturers on good-sized orders. Weakness has developed in the rivet market in the East where regular prices are being shaded from \$1 to \$4 a ton for car lots. In the Central West regular prices appear to be well maintained except on small rivets which are generally weak with quotations ranging from 65 to 65 and 10 per cent off list. Rivet specifications are fairly heavy.

Sheets.—New business is light and some of the mills will need additional tonnage shortly. Prices are fairly firm, although some of the smaller mills are shading black sheets \$1 to 3.75c., and other producers are making concessions on sheets in stock. The demand for automobile sheets has fallen off, as motor car manufacturers are reducing their inventories. One mill is offering a surplus stock of body sheets at 5c. or \$7 a ton under the regular price.

Reinforcing Bars.—New construction work requiring reinforcing bars has fallen off materially. The only new inquiry of any size is for approximately 100 tons for the Lake County Hospital, Painesville, Ohio.

Coke.—The coke market is quiet and prices are unchanged at \$6.50 to \$7 for the better grades of Connellsville foundry coke for prompt shipment and around \$7 for contracts.

Old Material.—The downward price movement has continued and there is no indication that the bottom has been reached. Heavy melting steel scrap remains at the same price as quoted a week ago, but most other grades have been marked down \$1 or more a ton. About the only scrap that is moving is in car lots. Some producers are storing scrap either because they cannot find a market for it or because they think they may be able to get better prices later. Locally little scrap is moving to the mills, as two of the leading consumers have held up on shipments and a third is taking on a limited quantity for which it is issuing permits. Trimmings on the track in Detroit have been offered to a Cleveland consumer at \$7.50, but the mill did not take them at that price because of the scarcity of labor for unloading.

We quote dealers buying prices f.o.b. Cleveland per gross ton:

Heavy melting steel.....	\$16.00 to \$16.50
Rails for rolling.....	19.00 to 19.50
Rails under 3-ft.....	18.50 to 18.75
Low phosphorus melting.....	19.00 to 19.25
Cast borings.....	13.25 to 13.75
Machine shop turnings.....	12.00 to 12.25
Mixed borings and short turnings.....	12.50 to 12.75
Compressed sheet steel.....	14.50 to 15.00
Railroad wrought.....	14.00 to 14.25
Railroad malleable.....	22.00 to 23.00
Light bundle sheet stampings.....	11.00 to 11.50
Steel axle turnings.....	16.50 to 17.00
No. 1 cast.....	20.00 to 21.00
No. 1 busheling.....	12.00 to 12.25
Drop forge flashings.....	11.50 to 12.00
Railroad grate bars.....	13.00 to 13.50
Stove plate.....	13.50 to 14.00
Pipes and flues.....	10.00 to 10.50

Philadelphia

Pig Iron Declines Further—Steel Demand Is Light—Scrap Is Weaker

PHILADELPHIA, July 10.—The situation in the steel and pig iron trade is one of expectation, without any tangible evidence as to when a turn for the better will come. It is generally recognized that not much improvement can be looked for before August or early September. Meanwhile blast furnaces, faced with the prospect of piling iron, have become impatient and are striving to obtain business by concessions in prices. Foundry iron is off fully \$1.50 a ton compared with a week ago. This is a total decline of \$4.50 from the peak price of \$31, furnace, reached early in second quarter.

Pig Iron.—The bottom has dropped completely out of the eastern Pennsylvania pig iron market in the past week and producers are trying to find a level that will bring out buyers of much-needed tonnage. The difficulty is that they have very little to work on, inquiries being few in number and mostly for small lots, the largest single sale reported for the week being 500 tons. On the limited business that has been done, prices have dropped \$1.50 a ton below last week's quotations. The lowest prices which can be verified are \$26.50, furnace, for No. 2 plain, \$27.50 for No. 2X and \$28.50 for No. 1X, but there are indications that some furnaces would go lower on attractive business. The sharp drop in prices is due principally to unwillingness on the part of furnace operators to pile iron if it can possibly be avoided. Already there are substantial piles at some stacks. It is the general opinion that the price decline will be checked only by the blowing out of a number of furnaces, the quantity of iron being produced now being recognized as considerably in excess of actual consumption. The first furnace to go out is one of the Wharton stacks of the Replogle Steel Co. The weakness is not confined to foundry grades. Basic is in the same position. Some furnaces would sell at \$27, delivered eastern Pennsylvania, while gray forge has been offered at \$26, furnace. Negotiations are on for a few thousand tons of basic and this business may be closed before the end of the week. Malleable was sold last week at \$28.50, furnace, but the price today would be more in line with the price on No. 2X. An Eastern furnace is offering copper bearing low phosphorus at \$32, a reduction of \$1. The Virginia situation is very weak and some furnaces may go out, though another furnace, the Reusens stack, is soon to go in. Stocks of foreign pig iron here are now very low, but prices have been reduced to conform with current quotations on domestic iron.

The following quotations are, with the exception of those on low phosphorus iron, for delivery at Philadelphia and include freight rates varying from 76 cents to \$1.64 per gross ton:

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	\$27.26 to \$28.13
East. Pa. No. 2X, 2.25 to 2.75 sil.	28.26 to 29.13
East. Pa. No. 1X.....	29.26 to 30.13
Virginia No. 2 plain, 1.75 to 2.25 sil.	32.17 to 32.67
Virginia No. 2X, 2.25 to 2.75 sil.	32.67 to 33.17
Basic delivered eastern Pa.....	27.00 to 27.50
Gray forge.....	27.00 to 27.50
Malleable.....	30.14 to 30.64
Standard low phos. (f.o.b. furnace).....	30.00 to 35.00
Copper bearing low phos. (f.o.b. furnace).....	32.00

Foreign Pig Iron

All prices f.o.b. cars Philadelphia, duty paid.	
Continental foundry, 1.80 to 2.50 sil.	\$27.50
Continental foundry, 2.50 to 3.25 sil.	28.50
Low phos. copper free, guar. not over 0.035 per cent phos.....	\$34.00 to 35.00
Continental, phos. 1.50; sil. 2 to 3	27.00

Ferroalloys.—British producers of ferromanganese have authorized their selling agents to take business for delivery over the remainder of the year at \$117.50, Atlantic seaboard, a drop of \$7.50 a ton. Domestic producers will undoubtedly meet this price. Very little business is offered. About 300 tons of resale fer-

romanganese has gone begging, consumers saying that they are covered for the rest of the year.

Semi-Finished Steel.—With no activity worthy of note, the billet market may be quoted at \$42.50, Pittsburgh, for rerolling quality and \$47.50 to \$50, Pittsburgh, for forging quality.

Plates.—Inquiries for plates are mostly for small lots for early shipment. A fair amount of business is being done, though less in total volume than the mills are shipping. Prices continue firm at 2.50c., Pittsburgh.

Structural Steel.—The volume of business is small, but mills are still shipping freely on contracts and specifications continue at a good rate. With the exception of the one Eastern mill which has quoted 2.40c., Pittsburgh, in some instances, the price remains firm at 2.50c.

Bars.—Production of bars is cut down somewhat by the warm weather. Specifications come in at a rate that is in fair keeping with production, but new business is light. The market continues firm at 2.40c., Pittsburgh. Bar iron is 2.35c. to 2.40c., Pittsburgh.

Bolts, Nuts and Rivets.—The past week has brought an improvement in the demand for bolts, nuts and rivets and also in the price situation. Some of the extremely low prices have disappeared, but large machine bolts are still obtainable from most makers at 50 and 10 and 10 per cent off list.

Warehouse Business.—Prices on steel out of stock are unchanged and for local delivery are as follows:

Soft steel bars and small shapes, 3.55c.; iron bars (except bands), 3.55c.; round edge iron, 3.75c.; round edge steel, iron finished, $1\frac{1}{2}$ x $\frac{1}{2}$ in., 3.75c.; round edge steel planished, 4.55c.; tank steel plates, $\frac{1}{4}$ in. and heavier, 3.65c.; tank steel plates, $\frac{1}{2}$ in., 3.95c.; blue annealed steel sheets, No. 10 gage, 4.25c.; black sheets, No. 28 gage, 5.15c.; galvanized sheets, No. 28 gage, 6.25c.; square twisted and deformed steel bars, 3.65c.; structural shapes, 3.65c.; diamond pattern plates, $\frac{1}{4}$ -in., 5.40c.; $\frac{1}{2}$ -in., 5.60c.; spring steel, 5c.; round cold-rolled steel, 4.35c.; squares and hexagons, cold-rolled steel, 4.85c.; steel hoops, 1 in. and wider, No. 20 gage and heavier, 4.75c.; narrower than 1 in., all gages, 5.25c.; steel bands, No. 12 gage to $\frac{1}{2}$ -in., inclusive, 4.35c.; rails, 3.55c.; tool steel, 8.50c.; Norway iron, 7c.

Ore.—Last week receipts of foreign ore at Philadelphia totaled 30,343 tons, as follows: Tunis, 8050 tons; Spain, 8820 tons; Sweden, 13,473 tons.

Old Material.—Prices have dropped within a week 50c. to \$2 a ton on nearly all grades. In the absence of demand from consumers business is confined largely to purchases by brokers on old orders. The only exception to the general price decline is pipe, one consumer having bought 1000 tons at \$16, delivered, which is higher than the market has been quoted for some weeks. It is reported that one large Eastern consumer will now pay only \$16 for No. 1 heavy melting steel and \$13.50 for blast furnace borings and turnings, but as these prices went into effect only today it has not been demonstrated whether purchases can be made at these levels.

We quote for delivery at consuming points in this district as follows:

No. 1 heavy melting steel.....	\$17.00 to \$18.00
Scrap rails	17.00 to 18.00
Steel rails for rolling.....	19.00 to 20.00
No. 1 low phos., heavy 0.04 and under	24.00 to 25.00
Cast iron car wheels.....	20.00 to 22.00
No. 1 railroad wrought.....	19.00 to 20.00
No. 1 yard wrought.....	17.00 to 18.00
No. 1 forge fire.....	16.00 to 16.50
Bundled sheets (for steel works).....	15.00 to 15.50
No. 1 busheling	17.00 to 18.00
Mixed borings and turnings (for blast furnace use).....	14.00 to 15.00
Machine shop turnings (for steel works use)	15.00 to 15.50
Machine shop turnings (for rolling mill use).....	15.50 to 16.00
Heavy axle turnings (or equivalent)	17.00 to 18.00
Cast borings (for steel works and rolling mills).....	15.00 to 15.50
Cast borings (for chemical plants).....	18.00 to 19.00
No. 1 cast	20.50 to 21.50
Heavy breakable cast (for steel plants)	18.00 to 18.50
Railroad grate bars.....	17.00 to 18.00
Stove plate (for steel plant use).....	16.50 to 17.00
Railroad malleable	19.00 to 20.00
Wrought iron and soft steel pipes and tubes (new specifications).....	15.50 to 16.00
Shafting	22.00 to 24.00
Steel axles	24.00 to 26.00

UNION BEGINS DRIVE

Attempt to Be Made by American Federation of Labor to Organize Steel Industry

WASHINGTON, July 10.—Stung by its defeat of 1919, when a radical group led by W. Z. Foster and John Fitzpatrick grasped the reins from it and took control of the steel strike, the American Federation of Labor again has begun a drive to organize the iron and steel industry without so-called radical leaders. Admission of this fact was made today at the office of President Samuel Gompers of the Federation, in vouching for the accuracy of a statement concerning the proposed steel strike carried in the *Baltimore Sun*.

Agents of organized labor, it was stated, already had been sent into the iron and steel areas and the resumed attempt to organize labor in the iron and steel industry will be started by the use of a fund of \$70,000 left over from the strike of 1919. In addition to the agents of the American Federation of Labor that now are at work to organize the industry, there are also 16 organizations affiliated with the industry which are supporting the Federation. Mr. Gompers, referring to the abortive strike led by Foster, said there would be no outside agents used in the present drive. Mr. Gompers would neither confirm nor deny reports that Bethlehem, Pa., and Cleveland and Chicago have been selected as the centers of the new drive. It was also claimed that the agents are busy in the Pittsburgh district.

"This is the psychological time for the organization of the steel industry," said Mr. Gompers, "and no man has contributed more to it than Mr. Gary.

"Seventy thousand dollars has been held in trust since the 1920 strike, and if that is not enough to carry on the present fight, it will not lag for the want of funds. Labor will support the movement and see that it goes forward."

Mr. Gompers said he felt that too much attention had been given by the newspapers to Mr. Foster, adding that "publicity is grist for his mill."

Mr. Gompers then added: "A committee composed of the heads of the 16 affiliated organizations has been appointed to carry on the work of organizing the steel industry and it is now going forward. I prefer not to say what the preliminary reports have been since the drive started."

In declining to comment on the reports about certain points being selected as the centers of the drive, Mr. Gompers said: "The reasons for that are obvious. The great money power behind the steel industry will stop at nothing in such a case. With its admitted relations with detective agencies, its readiness to use all means to prevent organizing, even subornation of perjury, and the firing men at the first intimation of any interest in organized labor, any information of our plans would help them rather than us."

It was stated that Michael F. Tighe, president of the Amalgamated Association of Iron, Steel and Tin Workers, has been selected chairman of the executive committee to promote the organization of the steel workers, and William Hannon, a member of the executive committee of the International Association of Machinists, has been chosen secretary.

"The recent decision of the employers," said Mr. Tighe, "that abandonment of the 12-hr. day in the steel industry was not desired by the steel workers, has been challenged by these employees as well as humanitarian advocates in all classes of society. The sixteen national and international organizations which have jurisdiction over the several classes of steel workers have responded to earnest appeals made by these employees to again take up the work of organization, so they can again demand through collective bargaining some measure of redress and protection."

FABRICATED STEEL BUSINESS

Falling Off in Awards, but Round Tonnage of New Private Projects

The week's awards for 19 fabricated steel structures amounted to barely 4500 tons, or less than 240 tons apiece on the average. Thanks to a Ford Motor Co. project at St. Paul, an Elks' building at Milwaukee and a Western Electric enterprise at Kearny, N. J., fresh inquiries call for upward of 18,000 tons. The chief items are:

Awards

Western Union Telegraph Building, New Orleans, 500 tons, to Virginia Bridge & Iron Works.

Kansas, Oklahoma & Gulf Railroad, six deck plate girder spans, 372 tons, to Wisconsin Bridge & Iron Co.

Pennsylvania System, South Bend Division, three single deck plate girder spans, Rosedale, Ind., 148 tons, to Bethlehem Steel Bridge Co.

Central of Vermont Railway, St. Albans, engine house and machine shop, 157 tons, to American Bridge Co.

Kewaunee, Green Bay & Western, 230-ft. draw span over Fox River, between Green Bay and Fort Howard, Wis., 342 tons, to Wisconsin Bridge & Iron Co.

Federal Reserve Bank, St. Louis, miscellaneous structural steel, 100 tons, to unnamed fabricator.

Ely, Minn., roof trusses for high school, 157 tons, to National Iron Co.

Mahaska County, Iowa, two 140 ft. x 20 ft. skew truss highway spans, 125 tons, to unnamed fabricator.

Missouri Pacific Railway, one 90 ft., one 26 ft. and three 75 ft. spans and cast steel shoes, 256 tons, to American Bridge Co.

Missouri Pacific, three 50-ft. spans and two 71-ft. spans, 144 tons, divided between Virginia Bridge & Iron Co. and Mt. Vernon Bridge Co.

Manitowoc Portland Cement Co., Manitowoc, Wis., 350 tons of plates for kilns, to Manitowoc Ship Building Corporation.

Mispah Temple, Chicago, 100 tons to Wendnagle & Co.

Nash Motors Co., Kenosha, Wis., addition to forge shop, 120 tons, to Milwaukee Bridge Co.

Witherbee, Sherman & Co., Port Henry, N. Y., headframe, 100 tons, to Wisconsin Bridge & Iron Co.

Municipal auditorium, Birmingham, Ala., 900 tons, to Nashville Bridge Co.

Gas holder, Tacoma, Wash., 250 tons, to Stacey Mfg. Co.

Power plant, Winchester, Mass., 160 tons, to New England Structural Co.

Consolidated Coal Co. Portsmouth, N. H., coal conveyor, 125 tons, to New England Structural Co.

Wood Worsted Mills, Lawrence, Mass., boiler house addition, 132 tons, to New England Structural Co.

Hall of Justice, Los Angeles, 7000 tons, to McClintic-Marshall Co.

National Metal Molding, Economy, Pa., extension to press shop, 100 tons, to Jones & Laughlin Steel Corporation.

Structural Projects Pending

Inquiries for fabricated steel work include the following:

Ice storage building in the Bronx, New York, 500 tons.
Seaboard Air Line, bridge in South Carolina, 250 tons.
Western Electric Co., manufacturing plant at Kearny, N. J., 2000 tons.

Public School No. 72, New York, 800 tons.

Ford Motor Co., plant at St. Paul, Minn., 7500 tons, bids on general contract to be taken July 12.

Central of Vermont Railway, paint shop, St. Albans, Vt., 145 tons, bids being taken by Arnold Co., Chicago.

Bridge over Cape Fear River, Elizabethtown, N. C., State project No. 302, 315 tons, bids rejected and will be re-advertised in the fall.

Docks, Vicksburg, Miss., 1000 tons of sheet piling.

Illinois Central, viaduct at Forty-First Street, Chicago, 1100 instead of 350 tons as announced last week.

Peoria & Eastern Illinois Railroad, viaduct, 1000 tons, bids being taken.

Wilson dam, near Muscle Shoals, Ala., 400 tons, bids being taken.

Masonic building, Nashua, N. H., 350 tons.

State Street double leaf trunnion bascule bridge, Milwaukee, 500 tons. Bids close July 20. R. E. Stoelting, commissioner of public works.

Elks' clubhouse, Milwaukee, 2500 tons; revised bids close July 14. W. F. Eichfeld, executive secretary.

Lake County Hospital, Painesville, Ohio, 100 tons.

RAILROAD EQUIPMENT BUYING

Demand for New Rolling Stock Has Dropped to Lowest Point of the Year

There is so little demand by the railroads for new rolling stock that some of the car builders are wondering what the outlook for them will be in the latter months of the year. Few of them have more than three or four months' business on their books. Locomotive builders, however, are well filled up for the year. July is the low point of the year so far in equipment purchasing.

Fewer freight cars are now in need of repair than at any time since January, 1921, according to reports just filed July 2 by the carriers with the car service division of the American Railway Association. The railroads on June 15 had on order and awaiting delivery, 104,068 new freight cars, while they also had on order on the same date 1993 new locomotives.

The Atchison, Topeka & Santa Fe is inquiring for 300 drop-end mill gondolas.

The Chicago Great Western has ordered 300 box cars from the Pullman Co., this being an increase of an order recently placed.

The Standard Oil of New Jersey has ordered 12 tank cars from the American Car & Foundry Co.

The General Sugar Co., New York, has ordered 100 cane cars of 30-ton capacity from the Gregg Co., Ltd.

The Erie Railroad has let contracts for the repair of 200 produce cars to the Illinois Car Co. and 200 gondola cars to the Greenville Steel Car Co.

The Mississippi River and Bonne Terre is inquiring for 57 40-ton box car bodies.

The Live Poultry Transportation Co. has let 200 poultry cars to the New City Car Co.

The New York Central has placed 500 stock car bodies each with the American Car & Foundry Co. and the Pennsylvania Tank Car Co. and 500 flat car bodies with the Standard Steel Car Co.

The Shell Oil Co. has ordered 60 tank cars from the Pennsylvania Tank Car Co.

The Southern Pacific has placed 11 buffet and baggage cars with the American Car & Foundry Co.

The Virginian Railway has placed 25 gondola cars with the Pressed Steel Car Co.

The Santa Fe ordered 4 business cars from the Pullman Co.

The New York Central is inquiring for 100 to 550 5-ton hopper car bodies.

The Central of New Jersey placed repairs on 300 hopper cars with the Standard Steel Car Co.

The Pacific Electric awarded 50 street cars to the St. Louis Car Co. and 50 motor coaches to the Standard Steel Car Co.

The American Short Line Railroad Association, Chicago, is inquiring for 30 ballast, 50 box, 56 flat, 10 air dump, 150 gondola, 50 stock cars, 3 passenger coaches and 2 baggage and mail cars.

American Puddled Iron Co. Is Incorporated

Incorporation papers have been granted in Ohio to the American Puddled Iron Co., Youngstown, with a capitalization of \$3,500,000. The company was formed to take over the properties of the Youngstown Steel Co., which is building a mechanical puddling plant at Warren, Ohio, where operations are expected to start next fall. Incorporators are E. L. Ford, John Tod, John Stambaugh, Fred Tod, John W. Ford, R. C. Steese and Thomas M. Phillips, all well known steel men of the Mahoning Valley.

Mr. Ford, a director of the Youngstown Sheet & Tube Co., is the principal figure in the new company. He is the inventor of the mechanical puddling device which will be employed by the company, and which is now being installed.

The plant, which will cost about \$2,100,000, is fast nearing completion, and about \$1,300,000 has already been spent on it. A special meeting of stockholders of the Youngstown Steel Co. will be held July 27 to give formal approval to the transfer.

Financing which has been provided for will give about \$700,000 of working capital.

The Replogle Steel Co. reports a loss in the first quarter of \$109,865, after expenses, taxes and reserve for depreciation. The consolidated balance sheet as of March 31 shows cash of \$185,816, and accounts and notes receivable of \$508,366. Total assets and liabilities were \$15,641,158.

NEW TRADE PUBLICATIONS

Hammer Crushers.—Pennsylvania Crusher Co., Girard Building, Philadelphia. 16-page catalog of crushers for cement slag and limestone, illustrated, and showing a variety of types together with details and character of work. Particular features are said to include an unbreakable steel frame, a non-magnetic separator, quick acting adjustment, oversize bearings and renewable parts. Low cost per ton of crushed product is claimed.

Recording Gas Calorimeter.—Gas Producer & Engineering Corporation, 115 Broad Street, New York. 4-page folder describing the Johnson instrument, designed to insure against low quality gas and waste of coal. It reads in B.t.u. per cu. ft. and is said to be of particularly rugged construction, with practically no moving parts. It may be used for hot or raw gas as well as for clean producer gas, blast furnace gas, oil gas, water gas, coke oven gas and natural gas.

Electric Induction Furnaces.—Ajax Electrothermic Corporation, Trenton, N. J. Bulletin No. 3 describes the new Ajax-Northrup 35-kva. converter and the various standard high frequency furnaces which may be operated from it. Bulletin No. 2, issued previously, describes the 15-kva. converter and smaller furnaces. Both bulletins are pointed to as describing furnaces unique in the history of furnace development. The 35-kva. converter is said to make it possible to reach a uniform and controllable temperature of over 2500 deg. C. (4532 deg. Fahr.) in 15 min. in a furnace 2 in. in inside diameter and 7½ in. deep. The same converter applied to a larger furnace enables one to melt 45 lb. of nickel in 2½ hr. from a cold start.

Precision Bench Lathes and Millers.—Stark Tool Co., Waltham, Mass., illustrated catalog of tools, giving specifications in detail and also featuring Stark lathe attachments.

Threading Machinery.—Landis Machine Co., Inc., Waynesboro, Pa. Catalog No. 26, 6 x 9 in., 78 pages. Devoted to an illustrated description of the company's chasers, chaser holder and rotary die head, an attaching chart and diagrams of clearances for the latter being included. Various single, double and triple head machines for threading bolts and tapping nuts are shown as well as single and double head long bed machines with lead screw attachments for threading standard and stay bolts. The company's automatic die head, pipe and nipple threading machines, and chaser grinders are also described and specifications given.

Grating and Stair Treads.—Mitchell-Tappen Co., 15 John Street, New York. Catalog G-6. The design, manufacture and use of "Mitco" interlocked steel grating is illustrated and described, a section being devoted also to interlocked treads and window guards.

Pulverized Coal Burning by the "Multi-Mix" Method.—Ground Coal Engineering Corporation, Worcester, Mass. In an 8-page folder, the principles involved in effective mixing of powdered coal and air for combustion as embodied in the design of this particular type of feeding and burning equipment are brought out with the aid of photographs and drawings. In this method complete mixing is sought before the air and pulverized coal enter the furnace. This is accomplished by a specially designed mixer acting somewhat on the injector principle. The advantages claimed for the system include complete combustion, normal furnace volume only, minimum slag formation and low maintenance of brickwork.

Sand Blast Barrels.—American Foundry Equipment Co., 366 Madison Ave., New York. A 12-page folder, 7½ x 10¼ in. devoted to means of removing sand, scale, rust, oil etc., from castings, forgings, stampings, and a great variety of metalware. It is pointed out that machine tools wear longer when castings have been sand blasted. Illustrations include both diagrams and photographs of installations.

Automatic Rotary Sand Blast Tables.—American Foundry Equipment Co., 366 Madison Avenue, New York. An 8-page pamphlet devoted to the sand blasting of articles requiring unusual care to prevent breakage, bending, scratching or blunting. The description is of a rotary table on ball or roller bearings, with a rubber curtain in sections separating the blast compartment from the outside. Tables of the gravity type are made in two sizes, 4 ft. and 7 ft. in diameter, driven by 2½ and 5 hp. motors.

Hot Water Service Heaters.—Patterson-Kelley Co., 101 Park Avenue, New York. A 32-page catalog of heaters and converters, including those running up to 25,000 gals. per hr. These are shown in a great variety of type, each type having a large number of sizes. The tabular matter gives not only dimensions but capacities, sizes of connections and other particulars needed by those specifying equipment of this type.

Industrial Heating Problems.—The Westinghouse Electric & Mfg. Co. has issued the first number of a miniature publication entitled "Electric Heat," which will be devoted to industrial electric heating problems. In the first issue there are articles concerning the use of electric heat in the manufacture of storage batteries, electric motors and many other subjects. Outstanding are articles by Prof. W. Trinks, Carnegie Institute of Technology, on "Advantages and Limitations of Electric Heat," and "Reduced Labor—A By-Product," by M. R. Armstrong. The method of calculating power requirements of electric ovens is given, together with a number of ways in which electric heating may be applied to difficult jobs.

Electric Hardening Furnaces.—Automatic & Electric Furnaces, Ltd., 173 Farrington Road, London, England. Pamphlet giving testimonials and views illustrative of the use of the Wild-Barfield automatic electric furnaces.

Thermalene Gas.—Thermalene Gas Corporation, Kankakee, Ill. Booklet of 24 pages, 6 x 8 in., describing use and advantages of thermalene gas in welding and cutting. This gas is a combination of oil gas and acetylene gas from which the sulphurated and phosphorated hydrogen and ammonia have been removed. Thermalene gas producers are described and their operation outlined. A page is devoted to description of the Wolf seam tube welding machine, which uses Thermalene gas.

Twist Drills and Reamers.—Latrobe Tool Co., Latrobe, Pa., Catalog 1923, 111 pages, 5½ x 7½ in. Gives sizes, dimensions and list prices of high-speed steel taper-shank twist drills, of standard, collar, short body car and other types. Straight shank taper length drills of various types, millimeter sizes in taper and straight shank drills, oil hole and a variety of special drills are included. Reamer drills, track bits, bridge and boiler reamers, and a variety of other types are included. Pages are devoted to drill grinding and to speeds and feeds.

Electrical Supplies.—Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Catalog of electrical supplies for 1923-24. In appearance the new catalog does not differ greatly from previous ones. It is indexed according to subjects and to sections, and also has a style number and a thumb index. A new feature—a classified index—has been added to the introductory section under the title "How This Catalog Serves." Here is listed apparatus of particular interest to central stations, electric railways, industrial plants, mines, contractor-dealers, and architects. A complete list of all Westinghouse sales offices, agent jobbers, warehouses, service repair shops is also given, together with several illustrations of new combination sales, service and warehouse buildings, either recently built, or now in course of construction.

Type K Stoker.—Combustion Engineering Corporation, Broad Street, New York. A 4-page folder describing a stoker for operating boilers up to 200 hp. This is a horizontal grate stoker with a deep feed trough running the entire length, through which the coal is forced up over the grate bars. Sliding auxiliary dampers permit admission of air to the side grates or dump plates to complete combustion before the ashes are shaken down.

Locomotive Chart.—Jones-Pratt Co., Hartford, Conn. A chart measuring 30 x 19 in., showing a passenger locomotive of the mountain type, giving the names of 385 principal parts of the locomotive and indicating the Interstate Commerce Commission defect schedule as connected with those parts. The company lists 14 different items of packing and gaskets used on the locomotive. The scale of the drawing is about 3 ft. per inch.

The Rail Steel Products Association, an organization of manufacturers making light rails and reinforcing bars from old rails, has issued an 84-page book which explains both by word and illustration the manufacture of reinforcing steel. Specifications for rails for rolling, the American Society for Testing Materials specifications and manufacturers' standard specifications for rail steel and billet steel concrete reinforcement bars and those for reinforcement bars rolled from billets are included in the book. It is an educational effort and will be useful to those seeking knowledge of this industry.

Prices Finished Iron and Steel f.o.b. Pittsburgh

Carload Lots

Plates

Sheared, tank quality, base, per lb.....2.50c.

Structural Material

Beams, channels, etc., base, per lb.....2.50c.
Sheet piling2.65c.

Iron and Steel Bars

Soft steel bars, base, per lb.....2.40c.
Soft steel bars for cold finishing.....\$3 per ton over base
Reinforcing steel bars, base.....2.40c.
Refined iron bars, base, per lb.....3.25c.
Double refined iron bars, base, per lb.....4.85c. to 5.00c.
Stay bolt iron bars, base, per lb.....8.00c. to 8.50c.

Hot-Rolled Flats

Hoops, ordinary gages and widths, base, per lb.3.15c. to 3.30c.
Hoops, light gage, under 1 in. wide.....3.30c. to 3.50c.
Bands, base, per lb.....3.15c. to 3.30c.
Strips, base, per lb.....3.00c. to 3.30c.
Cotton ties, per bundle of 45 lb.....\$1.61

Cold-Finished Steels

Bars and shafting, base, per lb.....3.25c.
Strips, base, per lb.....5.00c. to 5.25c.

Wire Products

Nails, base, per keg.....\$3.00
Galvanized nails, 1 in. and over.....\$2.25 over base
Galvanized nails, less than 1 in.2.50 over base
Bright plain wire, base, No. 9 gage, per 100 lb.....2.75
Annealed fence wire, base, per 100 lb.....2.90
Spring wire, base, per 100 lb.....3.70
Galvanized wire, No. 9, base, per 100 lb.....3.35
Galvanized barbed, base, per 100 lb.....3.80
Galvanized staples, base, per keg.....3.80
Painted barbed wire, base, per 100 lb.....3.45
Polished staples, base, per keg.....3.45
Cement coated nails, base, per count keg.....2.70
Woven fence, carloads (to jobbers).....67 1/2 per cent off list
Woven fence, carloads (to retailers).....65 per cent off list

Bolts and Nuts

Machine bolts, small, rolled threads..60 and 10 per cent off list
Machine bolts, small, cut threads..50, 10 and 10 per cent off list
Machine bolts, larger and longer..50, 10 and 10 per cent off list
Carriage bolts, 3/4 x 6 in.:
Smaller and shorter, rolled threads

50, 10 and 10 per cent off list
Cut threads50 and 10 per cent off list
Larger and longer50 and 10 per cent off list
Lag bolts60 per cent off list
Plow bolts, Nos. 1, 2 and 3 heads...50 and 10 per cent off list
Other style heads.....20 per cent extra
Machine bolts, c.p.c. and t. nuts, 3/4 x 4 in.

45 and 10 per cent off list
Larger and longer sizes.....45 and 10 per cent off list
Hot pressed square or hex. nuts, blank.....3.75c. off list
Hot pressed nuts, tapped.....3.75c. off list
C.p.c. and t.square or hex. nuts, blank.....3.75c. off list
C.p.c. and t.square or hex. nuts, blank.....3.75c. off list
Semi-finished hex. nuts:

2 in. and smaller, U. S. S.....80 per cent off list
3/4 in. and larger, U. S. S.....75 per cent off list
Small sizes, S. A. E.....80 and 5 per cent off list
S. A. E., 3/4 in. and larger.....75 and 5 per cent off list
Stove bolts in packages.....75, 10 and 5 per cent off list
Stove bolts in bulk.....75, 10 and 5 per cent off list
Tire bolts50, 10 and 10 per cent off list
Bolt ends with hop pressed nuts..50, 10 and 10 per cent off list
Turnbuckles, with ends, 1/2 in. and smaller

55 and 5 to 50 per cent off list
Turnbuckles, without ends, 1/2 in. and smaller
70 and 10 to 65 and 5 per cent off list
Washers5c. to 5.25c. off list

Cap and Set Screws

Milled square and hex. head cap screws.
65 and 10 per cent off list
Milled set screws.....65 and 10 per cent off list
Upset cap screws.....75 per cent off list
Upset set screws.....75 per cent off list
Milled studs50 per cent off list

Rivets

Large structural and ship rivets, base, per 100 lb.....\$3.25
Large boiler rivets, base, per 100 lb.....3.35
Small rivets60 and 10 to 60 and 5 off list

Track Equipment

Spikes, 3/4 in. and larger, base, per 100 lb.....\$3.15
Spikes, 1/2 in., 3/4 in. and 5/8 in., per 100 lb.....\$3.50 to 3.75
Spikes, 1/2 in.3.50 to 3.75
Spikes, boat and barge, base, per 100 lb.....3.50 to 3.75
Track bolts, 3/4 in. and larger, base, per 100 lb..4.00 to 4.25
Track bolts, 1/2 in. and 5/8 in., base, per 100 lb..5.00 to 5.50
Tie plates, per 100 lb.....2.55 to 2.60
Angle bars, base, per 100 lb.....2.75

Welded Pipe

Butt Weld

Inches	Steel	Galv.	Inches	Iron	Galv.
1/4	Black	19 1/2	1/4 to 3/8	Black	+39
1/2 to 3/4	45	25 1/2	3/8	22	2
1/2	51	42 1/2	1 to 1 1/2	28	11
3/4	56	48 1/2		30	13
1 to 3	60	50 1/2			
1 to 3	62				

Lap Weld

Inches	Steel	Galv.	Inches	Iron	Galv.
2	55	43 1/2	2	23	7
2 1/2 to 6	59	47 1/2	2 1/2	26	11
7 and 8	56	43 1/2	3 to 6	28	13
9 and 10	54	41 1/2	7 to 12	26	11
11 and 12	53	40 1/2			

Butt Weld, extra strong, plain ends

Inches	Steel	Galv.	Inches	Iron	Galv.
1/4 to 3/8	41	24 1/2	2 to 3	61	50 1/2
3/8 to 1/2	47	30 1/2	1/4 to 3/8	+19	+54
1/2	53	42 1/2	1/2	21	7
3/4	58	47 1/2	3/4	28	12
1 to 1 1/2	60	49 1/2	1 to 1 1/2	30	14

Lap Weld, extra strong, plain ends

Inches	Steel	Galv.	Inches	Iron	Galv.
2	53	42 1/2	2	23	9
2 1/2 to 4	57	46 1/2	2 1/2 to 4	29	15
4 1/2 to 6	56	45 1/2	4 1/2 to 6	28	14
7 to 8	52	39 1/2	7 to 8	21	7
9 and 10	45	32 1/2	9 to 12	16	2
11 and 12	44	31 1/2			

To the large jobbing trade the above discounts are increased by one point, with supplementary discount of 5 per cent on black and 1 1/2 points, with a supplementary discount of 5 per cent, on galvanized.

Boiler Tubes

Lap Welded Steel	Charcoal Iron
2 to 2 1/4 in.....27	1 1/2 in.....+18
2 1/2 to 2 3/4 in.....37	1 3/4 to 1 1/2 in.....+8
3 in.....40	2 to 2 1/4 in.....2
3 1/4 to 3 3/4 in.....42 1/2	2 1/2 to 3 in.....7
4 to 13 in.....46	3 1/4 to 4 1/2 in.....9

Less carload lots 4 points less.

Standard Commercial Seamless Boiler Tubes

Cold Drawn	Hot Rolled
1 in.....55	3 and 3 1/4 in.....36
1 1/4 and 1 1/2 in.....47	3 1/2 and 3 3/4 in.....37
1 3/4 in.....31	4 in.....41
2 and 2 1/4 in.....22	4 1/2 in. and 5 in.....33
2 1/2 and 2 3/4 in.....32	

3 and 3 1/4 in.....38
3 1/2 in. and 3 3/4 in.....39

Less carloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extras for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be sold at mechanical tube list and discount. Intermediate sizes and gages not listed take price of net larger outside diameter and heavier gage.

Seamless Mechanical Tubing

Carbon under 0.30, base.....83 per cent off list
Carbon 0.30 to 0.40, base.....81 per cent off list
Plus usual differentials and extras for cutting. Warehouse discounts range higher.

Seamless Locomotive and Superheater Tubes

Cents per Ft.	Cents per Ft.
2-in. O.D. 12 gage.....15	2 1/4-in. O.D. 10 gage...20
2-in. O.D. 11 gage.....16	3-in. O.D. 7 gage.....35
2-in. O.D. 10 gage.....17	1 1/2-in. O.D. 9 gage.....15
2 1/4-in. O.D. 12 gage...17	5 1/2-in. O.D. 9 gage...55
2 1/2-in. O.D. 11 gage...18	5 1/2-in. O.D. 9 gage...57

Tin Plate

Standard cokes, per base box.....\$5.50

Terne Plate

(Per package, 20 x 28 in.)	
8-lb. coating, 100 lb. base.....\$11.00	20-lb. coating I. C....\$14.90
8-lb. coating I. C.....11.30	25-lb. coating I. C....16.20
12-lb. coating I. C.....12.70	30-lb. coating I. C....17.35
15-lb. coating I. C.....13.95	35-lb. coating I. C....18.35
	40-lb. coating I. C....19.35

Sheets

Blue Annealed

Nos. 9 and 10 (base), per lb.....3.00c.

Box Annealed, One Pass Cold Rolled

No. 28 (base), per lb.....3.85c.

Automobile Sheets

Regular auto body sheets, base (22 gage), per lb.....5.35c.

Galvanized

No. 28 (base), per lb.....5.00c.

Long Ternes

No. 28 gage (base), 8-lb. coating, per lb.....5.30c.

Tin-Mill Black Plate

No. 28 (base), per lb.....3.85c.

Manufacturers have pamphlets, which can be had upon application, giving price differentials for gage and extras for length, width, shearing, etc.

Freight Rates

All freight rates from Pittsburgh on finished iron and steel products, in carload lots, to points named, per 100 lb., are as follows:

Philadelphia, domestic.....\$0.32	Buffalo\$0.265	St. Louis\$0.43	Pacific Coast\$1.34
Philadelphia, export.....0.235	Cleveland0.215	Kansas City0.735	Pac. Coast ship plates 1.20
Baltimore, domestic...0.31	Cleveland, Youngstown 0.19	Kansas City (pipe)...0.705	Birmingham0.58
Baltimore, export.....0.225	Comb.0.29	St. Paul0.60	Memphis0.56
New York, domestic...0.34	Detroit0.29	Omaha0.735	Jacksonville, all rail..0.70
New York, export.....0.255	Cincinnati0.29	Omaha (pipe)0.705	Jacksonville, rail and water 0.415
Boston, domestic.....0.365	Indianapolis0.31	Denver1.27	New Orleans0.67
Boston, export.....0.255	Chicago0.34	Denver (pipe)1.215	

The minimum carload to most of the foregoing points is 36,000 lb. To Denver the minimum loading is 40,000 lb., while to the Pacific Coast on all iron and steel products, except structural material, the minimum is 80,000 lb. On the latter item the rate applies to a minimum of 50,000 lb., and there is an extra charge of 9c. per 100 lb. on carloads of a minimum of 40,000 lb. On shipments of wrought iron and steel pipe to Kansas City, St. Paul, Omaha and Denver the minimum carload is 46,000 lb. On iron and steel items not noted above the rates vary somewhat and are given in detail in the regular railroad tariffs.

Rates from Atlantic Coast ports (i.e., New York, Philadelphia and Baltimore) to Pacific Coast ports of call on most steamship lines, via the Panama Canal, are as follows: Pig iron, 30c. to 40c.; ship plates, 30c. to 40c.; ingot and muck bars, structural steel, common wire products including cut or wire nails, spikes, and wire hoops, 30c. to 40c.; sheets and tin plates, 30c. to 40c.; rods, wire rope cable and strands, 75c.; wire fencing, netting and stretcher, 49c.; pipes not over 8 in. in diameter, 50c.; over 8 in. in diameter, 2 1/2c. per in. or fraction thereof additional. All prices per 100 lb. in carload lots, minimum 40,000 lb.

Prices of Raw Materials, Semi-Finished and Finished Products

Ores

Lake Superior Ores, Delivered Lower Lake Ports	
Old range Bessemer, 55 per cent iron.....	\$6.45
Old range non-Bessemer, 51½ per cent iron.....	5.70
Messabi Bessemer, 55 per cent iron.....	6.20
Messabi non-Bessemer, 51½ per cent iron.....	5.55
Foreign Ore, per Unit, c.i.f. Philadelphia or Baltimore	
Iron ore, low phos., copper free, 55 to 58 per cent iron in dry Spanish or Algerian.....	11½c.
Iron ore, Swedish, average 66 per cent iron.....	10.50c.
Manganese ore, washed, 51 per cent manganese, from the Caucasus, nominal.....	48c.
Manganese ore, ordinary, 48 per cent manganese, from the Caucasus.....	42c.
Manganese ore, Brazilian or Indian, nominal	45c.
Tungsten ore, per unit, in 60 per cent concentrates	\$8.50
Chrome ore, basic, 48 per cent Cr ₂ O ₃ , crude, per ton, c.i.f. Atlantic seaboard.....	\$18.00 to 28.00
Molybdenum ore, 85 per cent concentrates, per lb. of MoS ₂ , New York.....	75c. to 85c.

Ferroalloys

Ferromanganese, domestic, 80 per cent, furnace, or seaboard, per ton.....	\$120.00
Ferromanganese, British, 80 per cent, f.o.b. Atlantic port, duty paid.....	117.50
Spiegeleisen, domestic, 19 to 21 per cent, per ton, furnace.....	45.00 to 47.50
Spiegeleisen, domestic, 16 to 19 per cent, furnace, per ton.....	44.00 to 46.50
Ferrosilicon, 50 per cent, delivered, per gross ton.....	82.50
Ferrosilicon, Bessemer, 10 per cent, per ton, furnace.....	48.50
Ferrosilicon, Bessemer, 11 per cent, per ton, furnace.....	51.80
Ferrosilicon, Bessemer, 12 per cent, per ton, furnace.....	55.10
Ferrosilicon, Bessemer, 13 per cent, per ton, furnace.....	59.10
Ferrosilicon, Bessemer, 14 per cent, per ton, furnace.....	64.10
Silvery iron, 6 per cent, per ton, furnace.....	37.00
Silvery iron, 7 per cent, per ton, furnace.....	38.00
Silvery iron, 8 per cent, per ton, furnace.....	39.50
Silvery iron, 9 per cent, per ton, furnace.....	41.50
Silvery iron, 10 per cent, per ton, furnace.....	43.50
Silvery iron, 11 per cent, per ton, furnace.....	46.80
Silvery iron, 12 per cent, per ton, furnace.....	50.10
Ferrotungsten, per lb. contained metal.....	88c. to 90c.
Ferrochromium, 4 to 6 per cent carbon, 60 to 70 per cent Cr. per lb. contained Cr. delivered.....	12c.
Ferrochromium, 6 to 7 per cent carbon, 60 to 70 per cent Cr. per lb.....	11.50c.
Ferrovanadium, per lb. contained vanadium..	\$3.50 to \$4.00
Ferrocobaltititanium, 15 to 18 per cent, per net ton.....	200.00

Fluxes and Refractories

Fluorspar, 80 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines.....	\$22.00
Fluorspar, 85 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines.....	23.50
Per 1000 f.o.b. works:	
Fire Clay:	
Pennsylvania.....	High Duty \$48.00 to \$51.00 Moderate Duty \$43.00 to \$46.00
Ohio.....	45.00 to 47.00 40.00 to 43.00
Kentucky.....	45.00 to 47.00 42.00 to 45.00
Illinois.....	48.00 to 50.00 45.00 to 47.00
Missouri.....	48.00 to 50.00 38.00 to 43.00
Ground fire clay, per net ton.....	6.50 to 9.50
Silica Brick:	
Pennsylvania.....	42.00 to 45.00
Chicago.....	52.00
Birmingham.....	48.00
Ground silica clay, per net ton.....	10.00
Magnesite Brick:	
Standard size, per net ton (f.o.b. Baltimore and Chester, Pa.).....	65.00
Grain magnesite, per net ton (f.o.b. Baltimore and Chester, Pa.).....	40.00
Chrome Brick:	
Standard size, per net ton.....	50.00

Semi-Finished Steel, f.o.b. Pittsburgh or Youngstown, per gross ton

Rolling billets, 4-in. and over.....	\$42.50
Rolling billets, 2-in. and under.....	42.50
Forging billets, ordinary carbons.....	\$47.50 to 50.00
Sheet bars, Bessemer.....	42.50
Sheet bars, open-hearth.....	42.50
Slabs.....	42.50
Wire rods, common soft, base, No. 5 to ¼-in.....	51.00
Wire rods, common soft, coarser than ¼-in.....	\$2.50 over base
Wire rods, screw stock.....	\$5 per ton over base
Wire rods, carbon 0.20 to 0.40.....	\$3 per ton over base
Wire rods, carbon 0.41 to 0.55.....	\$5 per ton over base
Wire rods, carbon 0.56 to 0.75.....	\$7.50 per ton over base
Wire rods, carbon over 0.75.....	\$10 per ton over base
Wire rods, acid.....	\$15 per ton over base
Skelp, grooved, per lb.....	2.40 to 2.45
Skelp, sheared, per lb.....	2.40 to 2.45
Skelp, universal, per lb.....	2.40 to 2.45

Finished Iron and Steel, f.o.b. Mill

Rails, heavy, per gross ton.....	\$43.00
Rails, light, new steel, base, per lb.....	2.25c.
Rails, light, rerolled, base, per lb.....	2.15c. to 2.20c.
Spikes, ¾-in. and larger, base, per 100 lb.....	\$3.15
Spikes, ½-in., ⅞-in. and ¾-in., base per 100 lb.....	\$3.25 to 3.75
Spikes, ¾-in., base, per 100 lb.....	3.25 to 3.75
Spikes, boat and barge, base, per 100 lb.....	3.50 to 3.75
Track bolts, ¾-in. and smaller, base, per 100 lb.....	4.15 to 4.50
Track bolts, ¾-in. and larger, base, per 100 lb.....	4.75 to 5.50
Tie plates, per 100 lb.....	2.55 to 2.60
Angle bars, per 100 lb.....	2.75
Bars, common iron, base, per lb., Chicago mill.....	2.50c.
Bars, common iron, Philadelphia mill.....	2.35c.
Bars, common iron, Pittsburgh mill.....	2.40c.
Bars, rails, steel reinforcing, base, per lb.....	2.15c. to 2.25c.
Ground shafting, base, per lb.....	3.65c.
Cut nails, base, per keg.....	\$3.40

Alloy Steel

S.A.E. Series Numbers	Bars 100 lb.
2100 (½% Nickel, 10 to 20 per cent Carbon).....	\$3.50 to \$3.75
2300 (¾% Nickel).....	5.50 to 5.75
2500 (5% Nickel).....	8.00 to 8.25
3100 (Nickel Chromium).....	4.50 to 4.75
3200 (Nickel Chromium).....	6.25 to 6.50
3300 (Nickel Chromium).....	8.25 to 8.50
3400 (Nickel Chromium).....	7.25 to 7.50
5100 (Chromium Steel).....	4.00 to 4.25
5200 (Chromium Steel).....	8.25 to 8.50
6100 (Chromium Vanadium bars).....	5.25 to 5.50
6100 (Chromium Vanadium spring steel).....	5.00 to 5.25
9250 (Silico Manganese spring steel).....	4.00 to 4.25
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chromium, 0.15 Vanadium).....	5.50 to 5.75
Chromium Molybdenum bars (0.80—1.10 Chromium, 0.25—0.40 Molybdenum).....	4.75 to 5.00
Chromium Molybdenum bars (0.50—0.70 Chromium, 0.15—0.25 Molybdenum).....	4.50 to 4.75
Chromium Molybdenum spring steel (1—1.25 Chromium, 0.30—0.50 Molybdenum).....	4.50 to 4.75

Above prices are for hot-rolled alloy steel bars, forging quality, per 100 lb. f.o.b. Pittsburgh. Billets 4 x 4 in. and larger are \$10 per gross ton less than net ton price for bars of same analyses. On smaller than 4 x 4-in. billets down to and including 2½-in. sq. there is a size extra of \$10 per gross ton; on billets smaller than 2½-in. sq. the net ton bar price applies.

To Blow in Reusens Blast Furnace

E. J. Lavino & Co., Bullitt Building, Philadelphia, owners of the Reusens blast furnace in Virginia, have decided to put that furnace in blast and have appointed Park & Williams, Inc., Real Estate Trust Building, Philadelphia, selling agent in the East, including New England. All grades of foundry iron will be made. Lavino & Co., who have made foundry pig iron only occasionally, intend to become regular factors in the pig iron trade.

American Sheet & Tin Plate Co. Advances Wages of Hot Mill Men

The American Sheet & Tin Plate Co. has announced an increase of 10 per cent to hot mill workmen, retroactive to July 1. This increase applies to the old scale and compares with an increase of 6 per cent on the base or 4½ per cent on the old scale granted hot mill men employed in sheet mills working under an agreement with the Amalgamated Association of Iron, Steel and Tin Workers.

Prices Finished Iron and Steel f.o.b. Pittsburgh

Carload Lots

Plates

Sheared, tank quality, base, per lb.2.50c.

Structural Material

Beams, channels, etc., base, per lb.2.50c.
Sheet piling2.65c.

Iron and Steel Bars

Soft steel bars, base, per lb.2.40c.
Soft steel bars for cold finishing.....\$3 per ton over base
Reinforcing steel bars, base,2.40c.
Refined iron bars, base, per lb.3.25c.
Double refined iron bars, base, per lb.4.85c. to 5.00c.
Stay bolt iron bars, base, per lb.8.00c. to 8.50c.

Hot-Rolled Flats

Hoops, ordinary gages and widths, base, per lb. 3.15c. to 3.30c.
Hoops, light gage, under 1 in. wide.....3.30c. to 3.50c.
Bands, base, per lb.3.15c. to 3.30c.
Strips, base, per lb.3.00c. to 3.30c.
Cotton ties, per bundle of 45 lb.\$1.61

Cold-Finished Steels

Bars and shafting, base, per lb.3.25c.
Strips, base, per lb.5.00c. to 5.25c.

Wire Products

Nails, base, per keg.\$3.00
Galvanized nails, 1 in. and over.....\$2.25 over base
Galvanized nails, less than 1 in.2.50 over base
Bright plain wire, base, No. 9 gage, per 100 lb.2.75
Annealed fence wire, base, per 100 lb.2.90
Spring wire, base, per 100 lb.3.70
Galvanized wire, No. 9, base, per 100 lb.3.35
Galvanized barbed, base, per 100 lb.3.80
Galvanized staples, base, per keg.3.80
Painted barbed wire, base, per 100 lb.3.45
Polished staples, base, per keg.3.45
Cement coated nails, base, per count keg.2.70
Woven fence, carloads (to jobbers).....67½ per cent off list
Woven fence, carloads (to retailers).....65 per cent off list

Bolts and Nuts

Machine bolts, small, rolled threads. .60 and 10 per cent off list
Machine bolts, small, cut threads. .50, 10 and 10 per cent off list
Machine bolts, larger and longer. .50, 10 and 10 per cent off list
Carriage bolts, ½ x 6 in.:
Smaller and shorter, rolled threads

50, 10 and 10 per cent off list
Cut threads50 and 10 per cent off list
Larger and longer50 and 10 per cent off list
Lag bolts60 per cent off list
Plow bolts, Nos. 1, 2 and 3 heads. .50 and 10 per cent off list
Other style heads.....20 per cent extra
Machine bolts, c.p.c. and t. nuts, ½ x 4 in.

45 and 10 per cent off list
Larger and longer sizes.....45 and 10 per cent off list
Hot pressed square or hex. nuts, blank.....3.75c. off list
Hot pressed nuts, tapped.....3.75c. off list
C.p.c. and t. square or hex. nuts, blank.....3.75c. off list
C.p.c. and t. square or hex. nuts, blank.....3.75c. off list
Semi-finished hex. nuts:

½ in. and smaller, U. S. S.80 per cent off list
¾ in. and larger, U. S. S.75 per cent off list
Small sizes, S. A. E.80 and 5 per cent off list
S. A. E., ½ in. and larger.....75 and 5 per cent off list
Stove bolts in packages.....75, 10 and 5 per cent off list
Stove bolts in bulk.....75, 10, 5 and 2½ per cent off list
Tire bolts50, 10 and 10 per cent off list
Bolt ends with hop pressed nuts. .50, 10 and 10 per cent off list
Turnbuckles, with ends, ½ in. and smaller
55 and 5 to 50 per cent off list

Turnbuckles, without ends, ½ in. and smaller
70 and 10 to 65 and 5 per cent off list
Washers5c. to 5.25c. off list

Cap and Set Screws

Milled square and hex. head cap screws,
65 and 10 per cent off list
Milled set screws.....65 and 10 per cent off list
Upset cap screws.....75 per cent off list
Upset set screws.....75 per cent off list
Milled studs50 per cent off list

Rivets

Large structural and ship rivets, base, per 100 lb.\$3.25
Large boiler rivets, base, per 100 lb.3.35
Small rivets60 and 10 to 60 and 5 off list

Track Equipment

Spikes, ½ in. and larger, base, per 100 lb.\$3.15
Spikes, ½ in., ⅞ in. and ¾ in., per 100 lb.3.50 to 3.75
Spikes, ¾ in.3.50 to 3.75
Spikes, boat and barge, base, per 100 lb.3.50 to 3.75
Track bolts, ¾ in. and larger, base, per 100 lb.4.00 to 4.25
Track bolts, ½ in. and ¾ in., base, per 100 lb.5.00 to 5.50
Tie plates, per 100 lb.2.55 to 2.60
Angle bars, base, per 100 lb.2.75

Welded Pipe

Inches	Steel Black	Butt Weld		Inches	Iron Black	Galv.
		Galv.	Weld			
1/4	45	19 1/2	1/4 to 3/4	+11	+39	
1/4 to 3/4	51	25 1/2	3/4	22	2	
1/2	56	42 1/2	3/4	28	11	
3/4	60	48 1/2	1 to 1 1/2	30	13	
1 to 3	62	50 1/2				

Inches	Steel Black	Lap Weld		Inches	Iron Black	Galv.
		Galv.	Weld			
2	55	43 1/2	2	23	7	
2 1/2 to 6	59	47 1/2	2 1/2	26	11	
7 and 8	56	43 1/2	3 to 6	28	13	
9 and 10	54	41 1/2	7 to 12	26	11	
11 and 12	53	40 1/2				

Inches	Steel Black	Butt Weld, extra strong, plain ends		Inches	Iron Black	Galv.
		Galv.	Weld			
1/4	41	24 1/2	1/4 to 3/4	61	50 1/2	
1/4 to 3/4	47	30 1/2	3/4 to 1 1/2	+19	+54	
1/2	53	42 1/2	1 1/2	21	7	
3/4	58	47 1/2	3/4	28	12	
1 to 1 1/2	60	49 1/2	1 to 1 1/2	30	14	

Inches	Steel Black	Lap Weld, extra strong, plain ends		Inches	Iron Black	Galv.
		Galv.	Weld			
2	53	42 1/2	2	23	9	
2 1/2 to 4	57	46 1/2	2 1/2 to 4	29	15	
4 1/2 to 6	56	45 1/2	4 1/2 to 6	28	14	
7 to 8	52	39 1/2	7 to 8	21	7	
9 and 10	45	32 1/2	9 to 12	16	2	
11 and 12	44	31 1/2				

To the large jobbing trade the above discounts are increased by one point, with supplementary discount of 5 per cent on black and 1½ points, with a supplementary discount of 5 per cent, on galvanized.

Boiler Tubes

Inches	Steel Black	Charcoal Iron	
		Galv.	Weld
2 to 2 1/4 in.	27	1 1/2 in.	+18
2 1/2 to 3 in.	37	1 1/2 to 1 3/4 in.	+8
3 in.	40	2 to 2 1/4 in.	2
3 1/4 to 3 3/4 in.	42 1/2	2 1/2 to 3 in.	7
4 to 13 in.	46	3 1/4 to 4 1/2 in.	9

Less carload lots 4 points less.

Standard Commercial Seamless Boiler Tubes

Inches	Steel Black	Cold Drawn	
		Galv.	Weld
1 in.	55	3 and 3 1/4 in.	36
1 1/4 and 1 1/2 in.	47	3 1/2 and 3 3/4 in.	37
1 3/4 in.	31	4 in.	41
2 and 2 1/4 in.	22	4 1/2 in. and 5 in.	33
2 1/2 and 2 3/4 in.	32		

3 and 3 1/4 in.38
3 1/2 in. and 3 3/4 in.39

Less carloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extras for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be sold at mechanical tube list and discount. Intermediate sizes and gages not listed take price of net larger outside diameter and heavier gage.

Seamless Mechanical Tubing

Carbon under 0.30, base.....83 per cent off list
Carbon 0.30 to 0.40, base.....81 per cent off list
Plus usual differentials and extras for cutting. Warehouse discounts range higher.

Seamless Locomotive and Superheater Tubes

Inches	Steel Black	Cents per Ft.	
		Galv.	Weld
2-in. O.D. 12 gage	15	2 1/4-in. O.D. 10 gage	20
2-in. O.D. 11 gage	16	3-in. O.D. 7 gage	35
2-in. O.D. 10 gage	17	1 1/2-in. O.D. 9 gage	15
2 1/4-in. O.D. 12 gage	17	5 1/4-in. O.D. 9 gage	55
2 1/4-in. O.D. 11 gage	18	5 1/2-in. O.D. 9 gage	57

Tin Plate

Standard cokes, per base box.....\$5.50

Terne Plate

Inches	Steel Black	(Per package, 20 x 28 in.)	
		Galv.	Weld
8-lb. coating, 100 lb.		20-lb. coating I. C.	\$14.90
base	\$11.00	25-lb. coating I. C.	16.20
8-lb. coating I. C.	11.30	30-lb. coating I. C.	17.35
12-lb. coating I. C.	12.70	35-lb. coating I. C.	18.35
15-lb. coating I. C.	13.95	40-lb. coating I. C.	19.35

Sheets

Blue Annealed
Nos. 9 and 10 (base), per lb.3.00c.

Box Annealed, One Pass Cold Rolled
No. 28 (base), per lb.3.85c.

Regular auto body sheets, base (22 gage), per lb.5.35c.

No. 28 (base), per lb.5.00c.

No. 28 gage (base), 8-lb. coating, per lb.5.30c.

No. 28 (base), per lb.3.85c.

Manufacturers have pamphlets, which can be had upon application, giving price differentials for gage and extras for length, width, shearing, etc.

Freight Rates

All freight rates from Pittsburgh on finished iron and steel products, in carload lots, to points named, per 100 lb., are as follows:

Philadelphia, domestic.....\$0.32	Buffalo\$0.265	St. Louis\$0.43	Pacific Coast\$1.34
Philadelphia, export.....0.235	Cleveland0.215	Kansas City0.735	Pac. Coast ship plates 1.20
Baltimore, domestic.....0.31	Cleveland, Youngstown	Kansas City (pipe)....0.705	Birmingham0.58
Baltimore, export.....0.225	Comb.0.19	St. Paul0.60	Memphis0.56
New York, domestic.....0.34	Detroit0.29	Omaha0.735	Jacksonville, all rail.. 0.70
New York, export.....0.255	Cincinnati0.29	Omaha (pipe)0.705	Jacksonville, rail and
Boston, domestic.....0.365	Indianapolis0.31	Denver1.27	water0.415
Boston, export.....0.255	Chicago0.34	Denver (pipe)1.215	New Orleans0.67

The minimum carload to most of the foregoing points is 36,000 lb. To Denver the minimum loading is 40,000 lb., while to the Pacific Coast on all iron and steel products, except structural material, the minimum is 80,000 lb. On the latter item the rate applies to a minimum of 50,000 lb., and there is an extra charge of 9c. per 100 lb. on carloads of a minimum of 40,000 lb. On shipments of wrought iron and steel pipe to Kansas City, St. Paul, Omaha and Denver the minimum carload is 46,000 lb. On iron and steel items not noted above the rates vary somewhat and are given in detail in the regular railroad tariffs.

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Prices of Raw Materials, Semi-Finished and Finished Products

Ores

Lake Superior Ores, Delivered Lower Lake Ports

Old range Bessemer, 55 per cent iron.....	\$6.45
Old range non-Bessemer, 51½ per cent iron.....	5.70
Messabi Bessemer, 55 per cent iron.....	6.20
Messabi non-Bessemer, 51½ per cent iron.....	5.55

Foreign Ore, per Unit, c.i.f. Philadelphia or Baltimore

Iron ore, low phos., copper free, 55 to 58 per cent iron in dry Spanish or Algerian.....	11½c.
Iron ore, Swedish, average 66 per cent iron.....	10.50c.
Manganese ore, washed, 51 per cent manganese, from the Caucasus, nominal.....	48c.
Manganese ore, ordinary, 48 per cent manganese, from the Caucasus.....	42c.
Manganese ore, Brazilian or Indian, nominal.....	45c.
Tungsten ore, per unit, in 60 per cent concentrates.....	\$8.50
Chrome ore, basic, 48 per cent Cr ₂ O ₃ , crude, per ton, c.i.f. Atlantic seaboard.....	\$18.00 to 28.00
Molybdenum ore, 85 per cent concentrates, per lb. of MoS ₃ , New York.....	75c. to 85c.

Ferroalloys

Ferromanganese, domestic, 80 per cent, furnace, or seaboard, per ton.....	\$120.00
Ferromanganese, British, 80 per cent, f.o.b. Atlantic port, duty paid.....	117.50
Spiegeleisen, domestic, 19 to 21 per cent, per ton, furnace.....	45.00 to 47.50
Spiegeleisen, domestic, 16 to 19 per cent, furnace, per ton.....	44.00 to 46.50
Ferrosilicon, 50 per cent, delivered, per gross ton.....	82.50
Ferrosilicon, Bessemer, 10 per cent, per ton, furnace.....	48.50
Ferrosilicon, Bessemer, 11 per cent, per ton, furnace.....	51.80
Ferrosilicon, Bessemer, 12 per cent, per ton, furnace.....	55.10
Ferrosilicon, Bessemer, 13 per cent, per ton, furnace.....	59.10
Ferrosilicon, Bessemer, 14 per cent, per ton, furnace.....	64.10
Silvery iron, 6 per cent, per ton, furnace.....	37.00
Silvery iron, 7 per cent, per ton, furnace.....	38.00
Silvery iron, 8 per cent, per ton, furnace.....	39.50
Silvery iron, 9 per cent, per ton, furnace.....	41.50
Silvery iron, 10 per cent, per ton, furnace.....	43.50
Silvery iron, 11 per cent, per ton, furnace.....	46.80
Silvery iron, 12 per cent, per ton, furnace.....	50.10
Ferrotungsten, per lb. contained metal.....	88c. to 90c.
Ferrochromium, 4 to 6 per cent carbon, 60 to 70 per cent Cr. per lb. contained Cr. delivered.....	12c.
Ferrochromium, 6 to 7 per cent carbon, 60 to 70 per cent Cr., per lb.....	11.50c.
Ferrovanadium, per lb. contained vanadium.....	\$3.50 to \$4.00
Ferrocobaltititanium, 15 to 18 per cent, per net ton.....	200.00

Fluxes and Refractories

Fluorspar, 80 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines.....	\$22.00
Fluorspar, 85 per cent and over calcium fluoride, not over 5 per cent silica, per net ton f.o.b. Illinois and Kentucky mines.....	23.50
Per 1000 f.o.b. works:	
Fire Clay:	
Pennsylvania.....	High Duty \$48.00 to \$51.00 Moderate Duty \$43.00 to \$46.00
Ohio.....	45.00 to 47.00 40.00 to 43.00
Kentucky.....	45.00 to 47.00 42.00 to 45.00
Illinois.....	48.00 to 50.00 45.00 to 47.00
Missouri.....	48.00 to 50.00 38.00 to 43.00
Ground fire clay, per net ton.....	6.50 to 9.50
Silica Brick:	
Pennsylvania.....	42.00 to 45.00
Chicago.....	52.00
Birmingham.....	48.00
Ground silica clay, per net ton.....	10.00
Magnesite Brick:	
Standard size, per net ton (f.o.b. Baltimore and Chester, Pa.).....	65.00
Grain magnesite, per net ton (f.o.b. Baltimore and Chester, Pa.).....	40.00
Chrome Brick:	
Standard size, per net ton.....	50.00

Semi-Finished Steel, f.o.b. Pittsburgh or Youngstown, per gross ton

Rolling billets, 4-in. and over.....	\$42.50
Rolling billets, 2-in. and under.....	42.50
Forging billets, ordinary carbons.....	\$47.50 to 50.00
Sheet bars, Bessemer.....	42.50
Sheet bars, open-hearth.....	42.50
Slabs.....	42.50
Wire rods, common soft, base, No. 5 to ¼-in.....	51.00
Wire rods, common soft, coarser than ¼-in.....	\$2.50 over base
Wire rods, screw stock.....	\$5 per ton over base
Wire rods, carbon 0.20 to 0.40.....	\$3 per ton over base
Wire rods, carbon 0.41 to 0.55.....	\$5 per ton over base
Wire rods, carbon 0.56 to 0.75.....	\$7.50 per ton over base
Wire rods, carbon over 0.75.....	\$10 per ton over base
Wire rods, acid.....	\$15 per ton over base
Skelp, grooved, per lb.....	2.40 to 2.45
Skelp, sheared, per lb.....	2.40 to 2.45
Skelp, universal, per lb.....	2.40 to 2.45

Finished Iron and Steel, f.o.b. Mill

Rails, heavy, per gross ton.....	\$43.00
Rails, light, new steel, base, per lb.....	2.25c.
Rails, light, rerolled, base, per lb.....	2.15c. to 2.20c.
Spikes, ¾-in. and larger, base, per 100 lb.....	\$3.15
Spikes, ½-in., ⅝-in. and ¾-in., base per 100 lb.....	\$3.25 to 3.75
Spikes, ⅝-in., base, per 100 lb.....	3.25 to 3.75
Spikes, boat and barge, base, per 100 lb.....	3.50 to 3.75
Track bolts, ¾-in. and smaller, base, per 100 lb.....	4.15 to 4.50
Track bolts, ¾-in. and larger, base, per 100 lb.....	4.75 to 5.50
Tie plates, per 100 lb.....	2.55 to 2.60
Angle bars, per 100 lb.....	2.75
Bars, common iron, base, per lb., Chicago mill.....	2.50c.
Bars, common iron, Philadelphia mill.....	2.35c.
Bars, common iron, Pittsburgh mill.....	2.40c.
Bars, rails, steel reinforcing, base, per lb.....	2.15c. to 2.25c.
Ground shafting, base, per lb.....	3.65c.
Cut nails, base, per keg.....	\$3.40

Alloy Steel

S.A.E. Series Numbers	Bars 100 lb.
2100 (½% Nickel, 10 to 20 per cent Carbon).....	\$3.50 to \$3.75
2300 (3½% Nickel).....	5.50 to 5.75
2500 (5% Nickel).....	8.00 to 8.25
3100 (Nickel Chromium).....	4.50 to 4.75
3200 (Nickel Chromium).....	6.25 to 6.50
3300 (Nickel Chromium).....	8.25 to 8.50
3400 (Nickel Chromium).....	7.25 to 7.50
5100 (Chromium Steel).....	4.00 to 4.25
5200 (Chromium Steel).....	8.25 to 8.50
6100 (Chromium Vanadium bars).....	5.25 to 5.50
6100 (Chromium Vanadium spring steel).....	5.00 to 5.25
9250 (Silico Manganese spring steel).....	4.00 to 4.25
Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chromium, 0.15 Vanadium).....	5.50 to 5.75
Chromium Molybdenum bars (0.80—1.10 Chromium, 0.25—0.40 Molybdenum).....	4.75 to 5.00
Chromium Molybdenum bars (0.50—0.70 Chromium, 0.15—0.25 Molybdenum).....	4.50 to 4.75
Chromium Molybdenum spring steel (1—1.25 Chromium, 0.30—0.50 Molybdenum).....	4.50 to 4.75

Above prices are for hot-rolled alloy steel bars, forging quality, per 100 lb. f.o.b. Pittsburgh. Billets 4 x 4 in. and larger are \$10 per gross ton less than net ton price for bars of same analyses. On smaller than 4 x 4-in. billets down to and including 2½-in. sq. there is a size extra of \$10 per gross ton; on billets smaller than 2½-in. sq. the net ton bar price applies.

To Blow in Reusens Blast Furnace

E. J. Lavino & Co., Bullitt Building, Philadelphia, owners of the Ruesens blast furnace in Virginia, have decided to put that furnace in blast and have appointed Park & Williams, Inc., Real Estate Trust Building, Philadelphia, selling agent in the East, including New England. All grades of foundry iron will be made. Lavino & Co., who have made foundry pig iron only occasionally, intend to become regular factors in the pig iron trade.

American Sheet & Tin Plate Co. Advances Wages of Hot Mill Men

The American Sheet & Tin Plate Co. has announced an increase of 10 per cent to hot mill workmen, retroactive to July 1. This increase applies to the old scale and compares with an increase of 6 per cent on the base or 4½ per cent on the old scale granted hot mill men employed in sheet mills working under an agreement with the Amalgamated Association of Iron, Steel and Tin Workers.

Industrial News Items

William S. Sayres, Jr., special master in chancery, sold the entire equipment of the Michigan United Railway at public auction on the steps of the passenger station of the railway at Jackson, Mich., Saturday, June 30. The property was bid in for \$5,000,000 by the Irving Bank-Columbia Trust Co. of New York, as trustee for the committee charged with the reorganization of the company. The order was signed by Judge Arthur J. Tuttle, of Detroit, after the auction, and the way is cleared for a reorganization. The original bond issue was for \$10,000,000, so that the bondholders will receive only 50c. on the dollar, by bonds representing one-half their present holdings, while the actual cash will be used to pay the unsecured creditors and improve the equipment. The Michigan United Railway covers the heart of the lower peninsula of Michigan. It owns the street railways of Jackson, Lansing, Battle Creek, Kalamazoo, Owosso and Corunna, and all the connecting lines. Its tracks connect up with the Detroit United lines and those of the companies in the western section of the state.

The Automotive Utilities Corporation, Detroit, that had made arrangements to take over a manufacturing plant at Mt. Clemens, Mich., has cancelled this contract and has purchased a plant at Ann Arbor, Mich., formerly known as the Ann Arbor Machine Co. This plant consists of a building with 24,000 sq. ft. of floor space, seven and one-half acres of land with 1000 ft. of railroad frontage. The new company is now moving in its machinery, valued at \$30,000, and will be in production about Aug. 1. T. T. Hollinger, former president of the company, has resigned, and Wesley Kendall, formerly vice-president and general manager of the International Metal Stamp Co., has been elected president. A. R. Thomas, former secretary of the corporation, has resigned and has been replaced by George S. Anderson, who was at one time general secretary to Henry Ford.

The Youngstown Foundry & Machine Co., Youngstown, recently acquired by purchase the Poland Avenue foundry in Youngstown of the Mahoning Foundry Co. The purchase was made necessary by the increasing volume of foundry work coming to the Youngstown Foundry & Machine Co. Its monthly capacity will be about 1000 tons of castings, with the new unit, making it one of the largest producers of iron castings in the Middle West. The Youngstown Foundry & Machine Co. also announces that it plans to abandon its roll foundry on East Boardman Street in Youngstown and erect a model roll foundry on a 12-acre site at Girard, in Trumbull county.

The Truscon Steel Co., Youngstown, forecasts a gross business in 1923 of \$20,000,000. It is an important manufacturer of the Kahn steel building materials, standardized buildings, pressed steel products and the like. Gustave Kahn of Youngstown, general sales manager, and John Dyer of Detroit, were recently elected to the board of directors.

Trade Changes

Manning, Maxwell & Moore, Inc., have moved to Pershing Square Building, 100 East Forty-second Street, New York.

The U. & O. Press Co., dies, presses and special machinery, Glendale, Brooklyn, N. Y., has moved into its new plant at Hudson, N. Y.

The Anker Engineering Co., Widener Building, Philadelphia, power transmission appliances and special machinery, has taken the agency of the Valley Iron Works, Williamsport, Pa., for the Philadelphia district.

Donnelly & Co., formerly at 531-5 North Fourth Street, Philadelphia, has taken temporary quarters at 468-72 York Avenue. Alterations are being made on a building recently acquired and the company will move to the new location about Aug. 1.

The Falcon Steel Co. and the Falcon Tin Plate Co., Niles, Ohio, manufacturer of blue annealed sheets, black sheets, and coke tin plate, have established Pacific coast sales offices in the Sharon Building, 55 New Montgomery Street, San Francisco. William Best, Jr., is in charge as district sales manager and will handle sales in California, Oregon and Washington.

Henry M. Cooledge, Chase & Cooledge, 12 Main Street, Holyoke, Mass., mill supplies, has sold his interest in the business to the following employees, who now hold positions designated: Walter E. Lindell, president; Roy McCorkindale, vice-president; Edward E. Bogart, treasurer; William Turner, secretary. Mr. Cooledge has not been active in the management of the business for several years.

The Watson Engineering Co., Cleveland, has changed its name to the Watson Co., architect and engineer, this change being made in order that the name of the organization may describe more accurately the scope of its activities. The organization includes a staff of architects and struc-

tural, mechanical, electrical and heating engineers. A special department is devoted to remodeling existing plants in order to obtain greater efficiency. Wilbur J. Watson is president.

The Thatcher Furnace Co., manufacturer of heaters and ranges, has moved its general executive offices from New York to the new Thatcher administration building, at St. Francis and George Streets, Newark, N. J. The New York sales offices will remain at 133-135 West Thirty-fifth Street. The original plant was established in Newark in 1850.

The Cyclops Steel Co., formerly of 120 Broadway, New York, has moved its offices to 100 East Forty-second Street.

C. J. Walker, until June, 1922, assistant manager of the Gary, Ind., plant of the American Bridge Co., has moved to Philadelphia, where he will engage in the manufacture of an electric riveter of which he is the inventor. The riveter is designed to do much of the work now done by hydraulic and pneumatic power.

J. C. Bloomfield, who for a number of years was with C. H. Hart & Co., Chicago, contractors, has taken charge of the industrial works Chicago office at 1051 McCormick Building, handling the sale of industrial equipment in that territory.

The American Nickel Corporation has discontinued its Pittsburgh sales office and moved the entire sales organization to the main office and plant at Clearfield, Pa.

Plans of New Companies

The General Accessories Co. has been organized in Pontiac, Mich., by Frank Briscoe and associates in the Briscoe Devices Corporation. The capital stock of the new company is \$600,000, of which \$100,000 has been paid in. The company will manufacture automotive parts and other mechanical appliances and will take over the die casting business of the Briscoe Devices Corporation, while the latter company will devote its entire resources to its carburetor development. The accessories company has taken over the Briscoe plant on Osmun Street, Pontiac, and has acquired some adjoining property along the Grand Trunk Railroad. Officers of the new company are: Frank Briscoe, president; Howard G. Harris, Detroit, vice-president; Emil D. Moessner, secretary-treasurer.

The S. K. G. Appliance Corporation, Twelfth and Chestnut Streets, Philadelphia, has been incorporated with capital stock of \$1,000,000 to manufacture refrigerating machinery and equipment. Its activities for the present will be confined to acting as distributor for MacLaren frozen air refrigerating machines. W. C. Golt is president.

The Shelton Vapor Stove Co., Aetna Building, Indianapolis, has been incorporated with capital stock of \$100,000 to manufacture stoves and kindred products. The company has been organized for about a year as a copartnership and does its own manufacturing. Most of the machinery needed has been purchased. The plant is located at Michigan City, Ind. M. C. Shelton is president.

The Frictionless Metal Co., 1458-60 Collins Street, St. Louis, has been incorporated as a consolidation of three plants, located at Chattanooga, Tenn., Richmond, Va., and St. Louis, engaged in manufacturing bearing metals and solder. All plants are now running and operation will continue as formerly. C. W. Bourne is president.

The Halligan Pipe & Supply Co., Chicago, recently incorporated and now engaged in the jobbing of pipe, valves, fittings, etc., and the fabricating of industrial and power house piping, has purchased the entire property and assets of the Federal Pipe & Supply Co., Chicago, and has been reorganized with the following personnel: George J. Halligan, president and treasurer; George Mason, vice-president; Thomas A. Callaghan, secretary; Harry E. Shoff, sales manager. Mr. Halligan was the founder of both the merged companies and his experience covers many years in the jobbing field, originating in the founding of the Western Pipe & Supply Co., from the active management of which he withdrew several years ago. Mr. Shoff, formerly vice-president George B. Limbert & Co., in charge of sales, has been identified with the pipe business for 23 years.

Sand's Level & Tool Co. has been incorporated as a reorganization of J. Sand & Sons and will be located in its new factory at 8629-37 Gratiot Avenue, Detroit. Frank F. Sand is president; Julius A. Sand, vice-president; Edward A. Sand, treasurer; George A. Sand, secretary.

The Tobrin Tool Co., Plantsville, Conn., has been organized to manufacture pipe wrenches, screwdrivers and other tools. The officers of the company are: William S. Thompson, president; Joseph C. Brannin, vice-president and secretary; Robert W. Pain, treasurer, all of whom were formerly associated with the H. D. Smith & Co., Plantsville.

NON-FERROUS METALS

The Week's Prices

Cents per Pound for Early Delivery							
	Copper, New York		Tin Straits	Lead		Zinc	
	Lake	Electro-lytic*	New York	New York	St. Louis	New York	St. Louis
July							
37.....	15.00	14.12½	37.75	6.50	6.20	6.10	5.75
5.....	15.00	14.12½	37.50	6.35	6.05	6.20	5.85
6.....	15.00	14.12½	37.80	6.25	5.95	6.22½	5.87½
7.....	14.87½	14.25	...	6.25	5.95	6.25	5.90
9.....	14.87½	14.25	38.50	6.10	5.80	6.30	5.95
10.....	14.87½	14.25	38.25	6.00	5.70	6.40	6.05

*Refinery quotation: delivered price ¼c. higher.

†In last week's table July 1 should have been July 2, and the Straits tin quotation should have been 37.62½.

New York

NEW YORK, July 10.

The copper market developed further weakness but is now slightly firmer. In a fairly active tin market prices have receded and then recovered. Reductions in lead prices have been unprecedented. The zinc market has been the only one to consistently advance.

Copper.—The weakness in the electrolytic copper market, which has prevailed for some weeks, increased last week until sales were made around July 3 as low as 14.37½c., delivered. A moderate amount of business was recorded at this level. Since then the market has gradually become firmer until today the minimum price is generally acknowledged to be 14.50c., delivered, or 14.25c., refinery. This price has been established by fair sales and it is stated that sizable inquiries are before the market which can easily be converted into orders at this level. Consumers are more interested than in some time and it is hoped that the market has taken a turn for the better. Some good export business is also reported at 14.50c. to 14.60c., f.a.s. Lake copper is quoted at 14.87½c. to 15c., delivered.

Tin.—From July 2 to today, July 10, the market has been fairly active, particularly on certain days. On July 2 about 400 tons of Straits tin changed hands at a range of 37.37½c. to 37.62½c., the bulk being sold at the lower levels. Dealers were the principal buyers, but consumers were also active. Friday, July 6, was another day during which about 600 tons was sold. The selling in this case was general and shared in by the principal sellers. There was also some covering by shorts. The heaviest buying was done by independent tin plate makers and the range in prices was from 37.62½c. to 37.75c., according to position. Yesterday there was some short covering for July delivery, with about 200 tons sold. Consumers also took part of this. Today the market has been very quiet with spot Straits quoted at 38.25c., New York. The London market is today about £4 per ton higher than on July 2, with spot standard quoted at £180 7s. 6d., future standard at £181 12s. 6d. and spot Straits at £183 7s. 6d. Arrivals thus far this month have been 1150 tons, with the quantity afloat 7992 tons.

Lead.—Unprecedented have been the reductions in the price of lead from July 2 to today, inclusive. Not in many years, if ever, has the leading interest made reductions in its official price on every market day except Saturday for seven days in succession. On July 2, late in the day, the price was reduced from 6.85c. to 6.65c., New York, with the last reduction today bringing the price to 6c., New York. This is a decline of 85 points, or \$17 a ton in a little over a week. This action of the American Smelting & Refining Co. means two things: Former high prices have resulted in large production. This has been followed by inadequate sales. Aside from these interesting developments there have been no other features and the market has been very quiet. The St. Louis price has also declined to 5.70c.

Zinc.—In contrast to the other markets zinc has advanced almost daily until prime Western for prompt and

July delivery is quoted and has sold at 6.05c., St. Louis, or 6.40c., New York. This is an advance of 30 points over the price of July 2. The stronger market has been due largely to activity on the part of speculators and dealers and the disinclination of producers to sell freely. Buying by galvanizers has been only moderate.

Nickel.—Shot and ingot metal are quoted unchanged at 29c. to 32c. per lb., with electrolytic nickel held at 32c. by the leading producers. In the outside spot market quotations for shot and ingot nickel are 29c. to 32c. per lb.

Antimony.—The market is stagnant and weak with Chinese metal in wholesale lots quoted at 6.75c. to 6.85c., New York, duty paid.

Aluminum.—Virgin metal, 98 to 99 per cent pure, is quoted in wholesale lots by importers who can obtain the metal at 26.50c. to 27c., New York, duty paid. The leading domestic producer does not make public any quotation.

Old Metals.—Demand is very light and values are practically unchanged with the exception of lead which is lower. Dealers' selling prices are as follows:

	Cents Per Lb.
Copper, heavy and crucible	14.50
Copper, heavy and wire	13.50
Copper, light and bottoms	11.50
Heavy machine composition	11.25
Brass, heavy	8.75
Brass, light	7.00
No. 1 red brass or composition turnings ..	9.00
No. 1 yellow rod brass turnings	7.50
Lead, heavy	6.00
Lead, tea	5.00
Zinc	4.50

Chicago

CHICAGO.—Copper and tin have declined sharply in a weak market. Zinc, however, has recovered slightly after recessions which were proportionately heavier than those of the other metals. A large number of the old metal grades have also declined. We quote in carload lots, Lake copper, 15.25c.; tin, 40c.; lead, 6.10c.; spelter, 6c.; antimony, 8.50c. in less than carload lots. On old metals we quote copper wire, crucible shapes and copper clips, 11.75c.; copper bottoms, 10c.; red brass, 8.50c.; yellow brass, 6c.; lead pipe, 4.50c.; zinc, 3.50c.; pewter, No. 1, 22.50c.; tin foil, 25c.; block tin, 30c., all buying prices for less than carload lots.

Canadian Scrap Market

TORONTO, Ont., July 10.—The demand for iron and steel scrap in the Canadian market has been dull for the past few weeks with the result that Toronto dealers have made a general downward revision in their buying prices. With but one or two exceptions various materials have been reduced from \$1 to \$3 per ton, and even at the new level dealers are not inclined to pick up greater tonnages than the prospective market calls for. While local dealers are closing a few small tonnage orders for spot delivery, they point out that no demand exists for third quarter, and that buying for the future has been at a standstill for some time and that up to the present no consumers have made known their third quarter requirements.

In the Montreal market a slump is also reported. Slight reductions are also reported on some commodities in the Montreal market, but up to the present price cutting is not general. Canadian dealers are offering the following prices:

	Gross Tons Toronto	Gross Tons Montreal
Steel turnings	\$10.00	\$9.00
Machine shop turnings	10.00	9.00
Wrought pipe	8.00	10.00
Rails	15.00	15.00
No. 1 wrought scrap	15.00	15.00
Heavy melting steel	15.00	13.00
Steel axles	18.00	18.00
Axles, wrought iron	21.00	24.00
Net Tons		
Standard car wheels	16.00	17.00
Malleable scrap	16.00	17.00
Stove plate	16.00	18.00
No. 1 machinery cast	20.00	21.00

PERSONAL

William C. Frye, for seven years president of the Chain Belt Co., Milwaukee, has retired from active participation in its affairs and has been succeeded by C. R. Messinger, vice-president and general manager since 1917. Mr. Frye is retiring after active association with the company for 28 years. During this time he has occupied practically all the important executive positions and just previous to his election as president in 1916 he was treasurer. Mr. Messinger became associated with the Chain Belt Co. in 1917, after eight years as general manager of the Sivy Steel Casting Co. He is also president of the Sivy Steel Casting Co., vice-president of the Federal Malleable Co., all of Milwaukee, and a director in the Nugent Steel Castings Co., Chicago. Mr. Messinger was president of the American Foundrymen's Association in 1922-23.



C. R. MESSINGER

W. H. A. Austin has been appointed district sales agent of the Eastern Steel Co., in the territory covered by the New York office, effective July 1. He is also secretary of the company, having been connected with it in various capacities since 1907.

Ernest W. Duston, formerly of Cleveland, is now chief engineer of the American Bolt Corporation, New York. Until about a year ago Mr. Duston was connected with the Duston-Clark Engineering Co., Cleveland.

C. K. Everitt, works manager and director of Edgar Allen & Co., Ltd., Sheffield, England, is now visiting in the United States.

H. J. Perkins, formerly with the Sunnyside Bronze Foundry, the Delta Foundry Machine Co., and F. Bangerter, has been appointed works manager of the Niagara Falls Smelting & Refining Corporation, Buffalo.

Charles F. Michael, vice-president and general manager of the Ohio Locomotive Crane Co., Bucyrus, Ohio, was elected president at the recent annual meeting of the North Central Ohio Manufacturers Association, composed of manufacturers located in a number of Ohio counties, held in Marion, Ohio. F. B. McMillen, vice-president and general manager of the Hydraulic Press Co., Mt. Gilead, was elected first vice-president; Z. E. Taylor, secretary C. & G. Cooper Co., Mt. Vernon, second vice-president, and E. A. Songer, Bucyrus, secretary and treasurer. Among the new directors in addition to the officers are C. F. Burt, manager North Electric Co., Galion; F. E. Myers, president F. E. Myers & Bro. Co., Ashland; E. B. Phillips, general manager Champion Engineering Co., Kenton; C. B. King, vice-president and general manager of the Marion Steam Shovel Co., Marion; J. A. Root, president Fate-Root-Heath Co., Plymouth; Geo. F. Tolison, manager Sterling Grinding Wheel Co., Tiffin; J. E. Miller, manager Bellefontaine Bridge & Structural Co., Bellefontaine; R. W. Main, manager National Steam Pump Co., Upper Sandusky.

Clinton R. French has been elected president of the Machinery Forging Co., Cleveland, and of the Steel Forging Co., Cincinnati, succeeding his father, H. S. French, who died recently. Clinton R. French has been manager of the Cincinnati company.

Louis W. Blauman has returned to the Light Mfg. & Foundry Co., Pottstown, Pa., as sales representative.

J. B. Hill has taken charge of the Detroit district for Williams, White & Co., Moline, Ill., succeeding C. G. d'Uggias, who died recently. Mr. Hill is located at 623 Majestic Building, Detroit.

William R. Hill, New York, manager of the Yale & Towne Mfg. Co., Stamford, Conn., for 20 years, has been appointed president of the Sargent & Greenleaf Co., makers of locks, Rochester, N. Y., succeeding Nathan G. Williams, who died in August, 1921.

W. J. Leighner has been appointed works manager of the George Cutter Co., South Bend, Ind., a subsidiary of the Westinghouse Electric & Mfg. Co.

E. D. Stewart has been appointed branch manager of the El Paso, Texas, office of Westinghouse Electric & Mfg. Co.

George H. Grundy has been appointed manager of steel sales for Peter A. Frasse & Co., Inc., 417 Canal Street, New York, in the New York and Philadelphia territory.

Howard B. Charles, formerly purchasing agent for the McClintic-Marshall Co., Pittsburgh, has resigned to accept the position of secretary-treasurer of the Industrial Paint Co., Oliver Building, Pittsburgh. He also will be actively identified with the sales department of the company.

C. S. Siebert, formerly in the sales department of the Superior Sheet Steel Co. at Canton, Ohio, has resigned to become associated with Waldo, Egbert & McClain, Marine Trust Building, Buffalo, N. Y. Mr. Siebert is a son of W. P. Siebert, assistant general manager of sales of the Carnegie Steel Co.

Lawrence H. Gillespie has severed his connection with the Nicetown Plate Washer Co. to assume charge of bar and plain structural sales of the Montgomery Iron & Steel Co., Ninth and Berks Streets, Philadelphia, effective July 10.

William J. Wooldridge was appointed manager of the electrical sheet department of the Mansfield Sheet & Tin Plate Co., Mansfield, Ohio, on July 1. He was connected for about four years in the same capacity with the Whitaker-Glessner Co. at Portsmouth, Ohio, resigning that position last May. For more than 25 years Mr. Wooldridge was an electrical engineer with the General Electric Co. and during many of those years he specialized on electrical sheet steel problems. He is a member of the American Iron and Steel Institute, the American Institute of Electrical Engineers, the American Electro-Chemical Society, the American Institute of Mining and Metallurgical Engineers and the Iron and Steel Institute.



W. J. WOOLDRIDGE

Dr. A. S. McAllister, engineer physicist, who during the past two years has been liaison officer of the United States Bureau of Standards and the Federal Specifications Board, assigned to the headquarters of the American Engineering Standards Committee at New York, has been recalled to Washington for special work by Secretary of Commerce Hoover. Dr. D. R. Harper 3rd, physicist of the Bureau of Standards, has been assigned to the American Engineering Standards Committee succeeding Dr. McAllister. Dr. Harper is a graduate and former instructor of the University of Pennsylvania and has been associated with the Bureau of Standards since 1909. He has specialized in thermom-

etry and heat measurements, particularly in heat transmission and in internal combustion engine physics. He will be concerned with those standardization projects in which the Bureau of Standards and the Federal Specifications Board are cooperating with the American Engineering Standards Committee.

H. A. Deiters, formerly master mechanic of the Ferro Machine & Foundry Co., Cleveland, has become manager of the Price Electric Co., Cleveland, and L. W. Schen, formerly with the Hickok Electric Co., that city, has become affiliated with the same company and has charge of the laboratory.

William B. Mayo, chief engineer Ford Motor Co., has accepted the appointment as general manager of the Department of Street Railways, Detroit. The appointment was tendered Mr. Mayo by Mayor Doremus to fill the vacancy caused by the death of Joseph S. Goodwin. While Mr. Mayo will not give up his connection with the Ford interests, he will devote the major portion of his time to the department, it has been announced.

W. W. Blunt, general manager Holmes Foundry Co., Port Huron, Mich., sailed on the "Doric" the latter part of June on a two months' trip to Europe. He will spend most of his time in England, as prior to his present connection he represented the Westinghouse interests in England for 10 years.

R. E. Bebb has retired from active management of the Canton Stamping & Enameling Co., Canton, Ohio, of which he has been president and general manager for more than 15 years and has become chairman of the board of directors. He is also president of the Central Steel Co., Massillon, Ohio. He has been succeeded by H. T. Bebb.

Harry M. Denyes, who for the past 10 years has been connected with the Jacox steering gear plant of the Saginaw Products Co., a division of the General Motors Corporation, has resigned as chief engineer and joined the engineering staff of the Buick Motor Car Co., Flint, Mich. Mr. Denyes was with the Buick Company previous to his service with the Saginaw company.

Bruno V. Nordberg, president Nordberg Mfg. Co., Milwaukee, has been awarded the honorary degree of doctor of engineering by the University of Michigan.

Oscar E. Schwemer, Milwaukee, has been elected trustee of the defunct Ozone Appliance Co. of Milwaukee, manufacturer of electrical appliances.

A. J. Peoples, secretary-treasurer Detroit Copper & Brass Rolling Mills, was chosen second vice-president of the National Association of Credit Men at the recent annual convention held at Atlanta, Ga. Mr. Peoples has served four years as a director of the association.

James A. Irwin, after 38 years of active service in the steel industry, has retired to take up his residence in Southern California. In 1885 Mr. Irwin entered the employ of Miller, Metcalf & Parkin, Pittsburgh, afterward the Crescent Steel Co., later a subsidiary of the Crucible Steel Co. of America. He served in various sales capacities for these companies and for the past 12 years has been part owner and Eastern representative for the Pittsburgh Tool Steel Wire Co.

H. C. Jones, vice-president Inland Steel Co., Chicago, in charge of the Chicago Heights plant and of advertising, has resigned to engage in private business. W. C. Carroll, vice-president, will take charge of advertising, in addition to his other duties.

P. A. Orton, secretary and treasurer of the Orton & Steinbrenner Co., manufacturer of locomotive cranes, Chicago, has been elected president, succeeding H. G. Steinbrenner, resigned. H. Mertz, assistant secretary, has been promoted to secretary and sales manager, and H. Shaffer, purchasing agent, to treasurer and purchasing agent.

Arthur F. Braid, sales manager, Metal & Thermit Corporation, 120 Broadway, New York, will sail Aug. 4 on the Adriatic for an extended trip in Europe. After visiting his home in Glasgow, Scotland, he will go to London, Berlin and Paris, where he will attend the

International Foundrymen's convention in September. After a brief stay in Southern France and Monte Carlo and a tour through the various cities of Italy, he will sail from Naples early in October on the return trip. Mr. Braid will be accompanied by his wife.

H. G. Dalton, Pickands, Mather & Co., Cleveland, sailed last week for Europe, where he will spend two or three months visiting various countries.

George T. Ladd, president Geo. T. Ladd Co., manufacturer of water tube boilers, Pittsburgh, has been appointed a member of a subcommittee of the American Society of Mechanical Engineers on the storage of coal. This committee is part of a large committee recently appointed by the Federated American Engineering Societies to determine the engineering, mechanical and economic factors involved in the storage of coal and the influence of these factors on storage at the mine by the various classes of consumers.

F. H. Rood has been appointed engineer of tests for the Pittsburgh Testing Laboratory, with headquarters at Pittsburgh. He is a civil engineer, graduated from Syracuse University, and for many years was engineer of tests of the New York State Highway Commission. For three years he was assistant engineer of tests at the Pittsburgh Testing Laboratory and for two years research engineer with the United States Bureau of Public Roads.

JUNE STEEL OUTPUT

Daily Rate 11,200 Tons Less Than in May—
Year's Rate About 44,850,000 Tons

Due partly to the effects of the heat, steel ingot production for June fell to next to the lowest monthly total for this year. The daily rate of 144,100 tons is a decline of 11,300 tons per day from May.

The basis of the monthly reports of the American Iron and Steel Institute has been changed so that the report now represents companies which made over 95 per cent of the 1922 production. The reports for previous months this year have been revised on the new basis, as indicated in the tables. Although the actual reported output in 1922 is on the old basis of 84.15 per cent of the total production, the calculated monthly output of all companies and the approximate daily production of all companies are comparable with the similar figures presented for the first six months of this year, based on the actual returns of companies which in 1922 made 95.35 per cent of the total. The tables follow:

Monthly Production of Steel Ingots, January, 1922, to December, 1922, reported by companies which made 84.15 per cent of the Steel Ingot Production in 1922

Months 1922	Open-Hearth	Bessemer	All Other	Calculated Monthly Production All Companies	Approximate Daily Production All Companies
Jan. ..	1,260,899	331,851	822	1,891,857	72,764
Feb. ..	1,395,835	348,571	616	2,071,772	86,324
March.	1,918,570	451,386	795	2,814,667	104,247
April.	1,997,465	445,939	1,109	2,902,240	116,090
May ..	2,214,774	494,893	1,474	3,218,794	119,215
June ..	2,143,708	487,851	2,918	3,127,775	120,299
July ..	2,020,572	464,047	2,485	2,952,806	118,112
Aug. ..	1,807,310	404,379	2,893	2,629,256	97,380
Sept. ..	1,911,147	460,127	2,505	2,818,261	108,295
Oct. ..	2,352,207	518,010	2,198	3,410,265	131,164
Nov. ..	2,360,903	525,945	2,449	3,430,309	131,935
Dec. ..	2,241,104	536,214	2,572	3,300,416	122,017
Total.	23,624,404	5,469,213	22,836	34,568,418	111,511

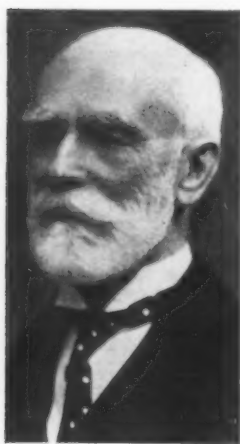
Monthly Production of Steel Ingots, January, 1923, to June, 1923, reported for 1923 by companies which made 95.35 per cent. of the Steel Ingot Production in 1922

Months 1923	Open-Hearth	Bessemer	All Other	Calculated Monthly Production All Companies	Approximate Daily Production All Companies
Jan. ..	2,906,892	728,270	9,467	3,822,369	141,569
Feb. ..	2,613,564	669,903	10,797	3,454,918	143,955
March.	3,046,309	799,525	12,841	4,046,854	149,883
April.	2,974,579	772,485	13,933	3,944,412	157,776
May ..	3,136,558	847,418	16,719	4,195,800	155,400
June ..	2,821,239	737,845	15,483	3,748,899	144,188
Six mo.	17,499,141	4,555,446	79,240	23,213,243	148,803

OBITUARY

Walter Monteith Aikman

WALTER MONTEITH AIKMAN, a pioneer and, for three-quarters of a century, an outstanding figure in the stamping, enameling and galvanizing industries, died July 6, 1923, at his home in Greenwich, Conn., in his ninety-sixth year. At the time of his death, he was chairman of the board of directors of the Central Stamping Co. of New York and Newark, N. J., with which he had been connected for nearly 77 years. Mr. Aikman was thus identified with the enameling industry during practically its entire history in this country and until the last few years was a prominent and active member of associations in the industry.



W. M. AIKMAN

Mr. Aikman was born in New York April 6, 1828. In 1858 he moved to Brooklyn, where he continued to reside until about five years ago, when he moved to Greenwich for all year round residence.

In May, 1847, at the age of 19, Mr. Aikman began his career in the sheet metalware industry by becoming associated with N. E. James & Co., which was established in 1834. At that time, the concern had an office and salesroom at 25 Cliff Street, New York, and a small three-story frame factory building on Railroad Avenue, Newark, N. J. At the end of the second year, Mr. Aikman became a partner of the firm. On the death of N. E. James, the concern became James, Aikman & Co., the senior member being David N. James, a nephew of the founder.

The company later consolidated with E. Ketcham & Co., and in 1886, when the name Central Stamping Co. was assumed, Mr. Aikman became president. The old James factory, which had been rebuilt and considerably expanded at various times, was entirely destroyed by fire in August, 1895, and shortly thereafter a new plant was built on a new location, on the Jersey Meadows, near what is now the Lincoln Highway. At this time the two factories in Brooklyn and another in Millis, Mass., were given up. The buildings of the present factory cover about ten acres.

Mr. Aikman held the office of president from 1886 until 1922, when he became chairman of the board of directors, E. M. Blake becoming president.

Besides his manufacturing interests, Mr. Aikman was also a trustee and vice-president of the South Brooklyn Savings Institution and was for many years prominently identified with the Presbyterian Board of Missions. Mr. Aikman is survived by two daughters, Mrs. Ella M. A. Stevens and Mrs. Mary A. Wood, of Greenwich, and a son, Walter M. Aikman, Jr., of Glen Ridge, N. J.

SAMUEL VAN CAMP, vice-president Van Camp Hardware & Iron Co., Indianapolis, died on July 5 at the New York Hospital, to which he was removed from the Aquitania, having become ill on his homeward trip from Europe. He was born 45 years ago.

CHARLES G. HAWKINSON, secretary and treasurer of the El Paso Foundry & Machine Co., El Paso, Tex., was found dead July 4 in the tonneau of his automobile in the desert near Blythe, Cal. Apparently he had been overcome with heat on the desert while en route to El Paso from the Pacific Coast, where he had been spending his summer vacation. He had been asso-

ciated with the El Paso foundry company ever since its organization over 20 years ago. He is survived by his wife and two sons.

JAMES F. BOURQUIN, vice-president and general manager of the Continental Motors Corporation, Detroit, died July 1, following an operation for appendicitis. After graduation from the engineering department of the University of Michigan in 1904, Mr. Bourquin came to Detroit and engaged in the automobile industry, first as an organizer of the Liberty Motor Car Co. and then with the Paige Motor Car Co.

H. S. FRENCH, president Machinery Forging Co., Cleveland, and the Steel Forging Co., Cincinnati, died recently after five weeks' illness, aged 57 years. He organized the Cleveland company in 1902 and had been at its head since that time. He organized the Cincinnati company in 1917.

HARRY F. KRAMER, general sales manager Somers, Fitler & Todd Co., Pittsburgh, mill and mine supplies, for the past 20 years, died at his home in Pittsburgh July 4. He was born in that city 52 years ago and had lived there all his life. He was a member of the Masonic fraternity, the Pittsburgh Chamber of Commerce, the Pittsburgh Field Club, the Pittsburgh Athletic Association and the Kiwanis Club. Mrs. Kramer, two sons and two daughters survive.

W. R. JOHNSON, chief engineer Colt's Firearms Mfg. Co., Meriden, Conn., while returning with others from a fishing trip, was almost instantly killed on July 1, in an automobile accident at East Windsor, Conn.

FRANCIS CONEY HERSEY, president Hersey Mfg. Co., South Boston, Mass., sugar making machinery, died last week at his summer home in Kennebunk Beach, Me. Mr. Hersey was born in Jamaica Plain, Boston, in 1843.

Southern Stocks Increased

BIRMINGHAM, July 10.—Owing largely to unsatisfactory furnace practice caused by humidity resulting in production of low-grade irons not previously booked, Alabama furnaces increased yard holdings in June. Stocks on hand June 1 and July 1 were as follows: Foundry, 22,000 and 28,000 tons; warrants, 700 and 800 tons; machine cast, 1700 and 5600 tons; basic, 10,000 and 13,000 tons; totals, 34,400 and 47,400 tons.

In Market for Machinery

The American Short Line Railroad Association, Chicago, is in the market for the following machinery: One crank pin truing machine, one double or single head bolt cutting machine, one pipe cutting machine, one punch and shears, one pneumatic hammer, one 20-in. x 12-ft. engine lathe, one steam hammer, one traveling head shaper, a wheel lathe and five wheel presses of 200 to 300 tons capacity.

Collecting Data on Pig Iron Tariff

Paul M. Tyler of the metal section of the United States Tariff Commission is visiting blast furnaces in the East, collecting cost data in relation to the request of Atlantic seaboard furnace operators for an increase in the duty on pig iron from 75c. to \$1.50 a ton under the powers given to the President by Congress in the existing tariff law.

Foley Steel Co. in Difficulties

The Foley Steel Co., Harrison Building, Philadelphia, which a year ago bought the works of the Slatington Iron & Steel Co. at Slatington, Pa., has filed a petition in bankruptcy. The company was headed by P. R. Foley, for many years general manager of sales of Eastern Steel Co., Pottsville, Pa.

Machinery Markets and News of the Works

MARKETS ARE QUIETER

July Business in Machine Tools Is in Relatively Small Volume

Denver, Rio Grande & Western Railroad Closes at Chicago for About \$275,000 Worth of Shop Equipment

Outside of railroad buying and inquiry, the machine-tool markets throughout the country are very quiet. Business is apparently not above, and perhaps is a little under the June rate, which was the lowest, generally speaking, of any month this year.

The purchase by the Denver, Rio Grande & Western Railroad of about \$275,000 worth of machine tools at Chicago was the outstanding transaction of the past week. The inquiry of this railroad had been pending for some weeks. The Elgin, Joliet & Eastern, whose inquiry has also been pending for some time, is definitely expected to place its orders within a week. Not so, however, with another pending list, that of the Chicago,

Burlington & Quincy, which may not be acted upon for at least a month.

A few small railroad inquiries have come out in the East. The Pennsylvania, Seaboard Air Line and Virginian roads are each in the market for a few tools, about four to six each. The New York Central has ordered two engine lathes. The Norfolk & Western is expected to begin buying against its recent list this week.

The Toledo, Ohio, Board of Education has bought about 16 tools for a new manual training school.

Among the important orders of the week was one for a round lot of machines from a company in the automotive field. Cleveland reports inquiries from two Detroit automobile makers. Apparently these inquiries are for the purpose of making estimates of expenditures for proposed extensions.

The slump in demand for machine tools, which is reported from all sections of the country, is most noticeable as regards industrial companies. A frequent explanation is that the shortage of skilled labor is so serious that many companies would not be able to find operatives for machines if they were to buy them.

New York

NEW YORK, July 10.

THERE is very little demand for machine tools by industrial companies, but inquiry from railroad sources continues in fair volume. June was the poorest month of the year with many local sales offices, with the exception that companies which specialize in railroad shop equipment did a very fair business. Among railroad inquiries of the past week is one from the Pennsylvania for four tools, one from the Seaboard Air Line for about the same number and one from the Virginian Railway for six or seven. The New York Central has bought a 42-in. and a 26-in. engine lathe. The Union Pacific has bought a 1500-lb. steam hammer from an Eastern company. The Glen Alden Coal Co. has purchased three 600-lb. steam hammers and one of the Standard Oil companies has taken a 30-in. x 20-ft. engine lathe. In some quarters the lull in demand for machine tools by industrial companies is held to be due to lack of skilled mechanics to operate the machines.

The Public Service Corporation of New Jersey has selected a site for the erection of a \$40,000,000 power plant to be built and operated by the Public Service Electric Power Co., a new subsidiary. The station will be built on the Hackensack River and will consist of two units of 200,000 hp. each. Work on the first unit of the new plant will be started shortly, according to an announcement by Thomas N. McCarter, president Public Service Corporation.

A manual training department will be installed in the new three-story high school to be erected on the Greenbrook Road, North Plainfield, N. J., estimated to cost \$300,000. Bids will be asked on the general contract on July 16, but bids will not be asked on the machine tools for several months. John T. Simpson, 31 Clinton Street, Newark, is architect.

The American Can Co., 120 Broadway, New York, has plans for a one-story addition, 55 x 128 ft., to its works at 1588 East Fortieth Street, Cleveland, estimated to cost \$45,000. C. G. Preis, company address, is architect.

The Embossing Co., Albany, N. Y., manufacturer of mechanical toys, has awarded contract to the Austin Co., Philadelphia, for a one-story addition to its plant at Colonie, N. Y., 62 x 64 ft.

Schloss & Orlando, 105 West Fortieth Street, New York, architects, are preparing plans for the construction of a two-story ice-manufacturing plant at Third Avenue and 181st Street, to cost in excess of \$300,000, for a company whose name is temporarily withheld.

Bids will be received by the Bureau of Supplies and Accounts, Navy Department, Washington, until July 24, for one motor-generator set for the Brooklyn navy yard, schedule 1070, and for 1410 side-cutting pliers, schedule 1056.

The Columbia Button Works, 49 West Twenty-seventh Street, New York, has inquiries out for an automatic drop hammer. A plating dynamo will also be purchased.

The State Hospital Commission, Capitol Building, Albany, N. Y., will take bids until July 25 for refrigerating equipment for installation at the State Hospital, Central Islip, N. Y. Sullivan W. Jones, Capitol Building, is state architect.

Power equipment, conveying, and other machinery will be installed in the addition to be erected at the two-story plant of the Larson Baking Co., 732 Henry Street, Brooklyn, at 67-75 Mill Street, estimated to cost \$95,000. The McCormick Co., 41 Park Row, New York, is architect and engineer.

The Shibaura Engineering Works, Yokohama, Japan, is planning the installation of considerable American machinery in a new machine shop, foundry and forge shop, for which plans have been drawn. The construction will involve more than \$100,000, and it is said that inquiries will be made for equipment at an early date.

The Board of Education, 500 Park Avenue, New York, has plans for a four-story automobile service and machine repair building, 64 x 125 ft., to cost \$350,000. William H. Gompert, Flatbush Avenue and Concord Street, Brooklyn, is architect and engineer.

The United States Navy Purchasing Office, Whitehall Building, New York, will purchase 100 steam gages, requisition 296.

The Republic Radiator Corporation, Utica, N. Y., recently organized with a capital of \$150,000, is perfecting plans for the establishment of a factory to manufacture water and steam radiators.

The Todd Shipyards Corporation, 25 Broadway, New York, has developed a new electric welding machine, to be known as the Todd twin-pole electric welder, soon to be placed on the market, and will perfect arrangements

for the manufacture in quantity, giving over a portion of its local plant, or one of its other plants, for this purpose.

The State Department, Buenos Aires, Argentine Republic, will take bids until Aug. 5 for two new oil refineries at La Plata and Plaza Huincul, to be operated under Government control. The first noted is designed for a capacity of 14,000 bbl. per day, and the other, 700 bbl. Each refinery will have an adjoining mechanical plant, equipped for the manufacture of containers and other oil equipment.

The Ford Motor Co., Highland Park, Mich., is arranging for the establishment of a department to manufacture steel springs at its new plant at Green Island, N. Y. Additional equipment will also be installed for the production of gears, radiators and kindred equipment in connection with the proposed expansion of the plant.

The Fleischmanns Light, Heat & Power Corporation, Fleischmanns, N. Y., recently organized, plans the installation and operation of a power plant and system. S. V. Ryan and G. S. Ortman, Fleischmanns, are heads. The company's corporate representative is Frost, Watson & Sharp, Albany, N. Y.

The Board of Commissioners, Millville, N. J., will receive bids until July 20 for pumping machinery and auxiliary equipment for installation at the new sewerage pumping station at West Millville, and water pumping station at South Millville. Newton B. Wade is city engineer.

Benjamin Gorlin, 143 Van Nostrand Avenue, Jersey City, N. J., will build a one-story machine and repair shop in connection with a group of 50 garages at the Old Bergen Road and Ocean Avenue, to cost in excess of \$50,000. C. H. Ziegler, 75 Montgomery Street, is architect.

The Unique Art Mfg. Co., Newark, manufacturer of mechanical and other toys, has purchased the building at the southeast corner of Pershine and Waverly Avenues for \$150,000, for the establishment of a new plant. The structure is four stories, and will be occupied entirely by the new owner.

A machine and mechanical department will be installed in the new five-story building to be erected on Plain Street by L. Bamberger & Co., 147 Market Street, Newark, department store, for general operating and warehouse service, estimated to cost \$1,000,000. Abbott, Merkt & Co., 175 Fifth Avenue, New York, are engineers and architects.

The Newark-Flint Corporation, recently organized as a subsidiary of the Durant Motors, Inc., 1819 Broadway, New York, will operate at Newark, representing the Flint, Princeton and Eagle automobiles of the parent company. A building will soon be selected for a service works, to be provided with a complete machine shop and parts department.

New England

BOSTON, July 10.

REPRESENTATIVES of machine tool builders and used machinery dealers have experienced another colorless week. The amount of business booked was infinitesimal if contrast is made with that in other sections of the country. Individual sales were mostly in single lots, the majority presses and grinding equipment and coming under the classification of used tools. The trade reports difficulty in arousing interest among users who have asked for quotations on various types of machines. Prospects that looked good ten days or a fortnight ago are now in the doubtful list.

A maker of gear shapers in this territory has just received an order for 12 high priced machines, one of the largest orders received by a machine tool builder this month. Another New England tool maker finds it necessary to continue night shifts to keep up with bookings. Working schedules in general are beginning to be disrupted, partly because of a seasonal letup in incoming business and partly otherwise. Railroad shop builders appear to have somewhat of an edge on makers of other kinds of shop equipment. A Vermont manufacturer is reported to have closed its foundry and placed its machine shop on a four day per week schedule. A Worcester tool maker indicates a reduction in weekly hour schedules in the near future unless a turn for the better comes soon. Other producers report a slight reduction in working forces or decreasing activities either because of a lack of new business or because of vacations.

Sales of small tools and machine tool parts continues brisk for this time of the year and manufacturers are behind on deliveries. Makers of abrasives are busy, but are not receiving as large orders as during the spring. Labor costs have increased in all branches of the small tool building industry, but workers are more efficient, consequently the labor position of the average producer is fairly comfortable.

The Crane Market

Demand for cranes is rather light. Sales offices are working on inquiries which have been pending for some weeks, but not much new business has come out in the past week. Indications are that many companies are marking time through the summer months, and there is a general feeling that conditions will improve with the approach of autumn.

The McDonald Engineering Co., Chicago, has bought a 20-ton Brown hoist, 50-ft. boom.

The Fisk Rubber Co., Chicopee Falls, Mass., has bought a 30-ton Browning locomotive crane.

The Cleveland Electric Illuminating Co., Cleveland, a 75-ton, 47 ft. span, and a 35-ton, 26 ft. span electric traveling crane from the Cleveland Crane & Engineering Co.

The Standard Boiler & Iron Plate Co., Niles, Ohio, 15-ton trolley from the Cleveland Crane & Engineering Co.

Pittsburgh Steel Products Co., Pittsburgh, one 5-ton, 3-motor, 115-ft. span, and one 10-ton, 4-motor, 85-ft. span, both mill type cranes to the Cleveland Crane & Engineering Co.

Reliance Steel Castings Co., Pittsburgh, one 5-ton, 30-ft. crane to Alfred Box & Co.

The M. J. Whiteall Association, Brussels Street, Worcester, Mass., plans the erection of a two-story, 22 x 24 ft., machine shop addition.

The three-story, 32 x 96 ft. machine shop addition contemplated by the Shawmut Engineering Co., 195 Freeport Street, Dorchester, Boston, is indefinitely postponed.

The Essex Brass Foundry Co., Sixth and Harvard Streets, Cambridge, Mass., has purchased property on Main and Sixth Streets, on which a foundry will be erected. Plans are in the preliminary stage, however.

A permit has been granted the Thomas Co., Thomas Street, Fitchburg, Mass., steel horse collars, to build a one-story, 75 x 87 ft. manufacturing unit.

The Andrew B. Hendryx Co., New Haven, Conn., metal goods, has taken out a permit to build a four-story plant adjoining its present factory on Audubon Street, to cost \$70,000.

The Brown Hoist Co., Cleveland, has been awarded contract for coal handling equipment for the new Weymouth, Mass., plant of the Edison Electric Illuminating Co., Boston.

The W. L. Gilbert Co., Winsted, Conn., clocks, is installing additional metal working and other equipment. The company is producing about 4000 clocks per day.

The plant of the R. H. Long Co., Millbrook Street, Worcester, Mass., heretofore devoted in part to the manufacture of footwear, has been sold to the R. H. Long Motor Co., manufacturer of Bay State automobiles, and hereafter will be used exclusively for the production of cars. Both companies are controlled by Richard H. Long, Framingham, Mass.

The Boston Gear Works, Norfolk Downs, Boston, has awarded contract to the Canter Construction Co., 6 Beacon Street, for an addition to cost about \$50,000.

Fire, July 2, destroyed a portion of the plant of the Sherwood Paper Co., Somerville, Mass., with loss estimated at \$85,000, including equipment. It is planned to rebuild.

The Chase Metal Works, Waterbury, Conn., will commence the erection of a one-story addition, 30 x 72 ft.

The National India Rubber Co., Bristol, R. I., a subsidiary of the United States Rubber Co., New York, has plans for a one-story addition, 60 x 180 ft., and improvements in the present works. Lockwood, Greene & Co., 24 Federal Street, Boston, are engineers.

The American Tube Works, Inc., Somerville, Mass., has awarded contract to Whidden & Beekman, 100 Boylston Street, Boston, for a one-story addition, 21 x 65 ft.

The Rochester Foundry & Machine Co., Rochester, N. H., plans to rebuild the portion of its plant destroyed by fire in June. An official estimate of loss has not been announced.

R. R. MacRae, Castleton, Vt., has commissioned G. F. Lamb, Gryphon Building, Rutland, Vt., architect, to prepare plans for a new two-story and basement ice and cold storage plant, 50 x 110 ft., at Castleton.

The Connecticut Blower Corporation, Hartford, Conn., recently formed under Delaware laws with capital of \$250,000, is perfecting plans for the establishment of a plant to manufacture exhaust fans, blower systems, etc., and expects to have the works ready for service in the fall. In the meantime, production will be carried out at the plant of the International Blower Co., which has been succeeded by the

new company. M. E. Keeney is president, and C. H. Keeney, treasurer.

Bids have been rejected for the proposed plant of the Ward Baking Co., New York, at Monroe and Main Streets, New Haven, Conn., to cost \$400,000, and revised plans will be prepared. The installation will include power equipment, ovens, conveying equipment and automatic machinery. C. B. Comstock, 110 West Fortieth Street, New York, is architect and engineer.

A steam-operated power plant to cost \$55,000, will be constructed at the Eastern Maine General Hospital, Bangor, Me. Haven & Hoyt, 220 Devonshire Street, Boston, are architects.

A one-story power house, 33 x 40 ft., will be erected at the plant of the New England Laundry Co., 215 Hawthorne Street, Hartford, Conn.

Philadelphia

PHILADELPHIA, July 9.

THE Pennsylvania Equipment Co., Norwood Station, Pa., is in the market for four to six second-hand Consolidation-type locomotives in serviceable condition, weighing about 130,000 lb. on drivers.

The Republic Lamp & Fixture Works, Inc., 732 Daly Street, Philadelphia, manufacturer of lighting fixtures, etc., has leased two floors in the building at 610 Arch Street, for extensions in its plant.

In connection with its new branch plant at Greenville, S. C., the Steel Heddle Mfg. Co., Twenty-first Street and Allegheny Avenue, Philadelphia, manufacturer of textile machine equipment, has acquired the works of the F. & B. Suter Co., High Point, N. C., manufacturer of similar equipment, and will remove the machinery to the new location. The plant will be two stories 60 x 125 ft., estimated to cost \$50,000. A portion of the factory will be equipped for assembling. J. E. Serrine & Co., Greenville, are engineers. Robert J. Freitag is treasurer.

The Bureau of Yards and Docks, Navy Department, Washington, has plans for extensions in the Government aircraft manufacturing plant at Philadelphia, Building No. 133, and will take bids at an early date under specification 4854.

The Philadelphia Commercial Museum, Thirty-fourth Street, Philadelphia, is in receipt of an inquiry from a company in the Jharia district, India, for machinery for all departments of a match-manufacturing plant, including boxes, for a capacity of 100 gross boxes per day.

The Newport Contracting & Engineering Co., Newport News, Va., has submitted a low bid at \$82,145, and will receive award for the construction of a new engine-testing laboratory at the Philadelphia navy yard, for the Bureau of Yards and Docks, Washington.

A number of electric power companies are being organized by F. W. Woodcock, C. A. McClure and associates, to install and operate plants and systems in East and West Brandywine Townships, and vicinity, the companies taking the names of the respective township. Application for State charters will be made Aug. 6. James Collins Jones, Bullitt Building, Philadelphia, is representative.

Motors, conveying and elevating machinery, and other equipment will be installed in the eight-story and basement plant to be erected by the Terminal Warehouse & Transfer Co., Delaware Avenue and Green Street, Philadelphia, estimated to cost \$500,000.

The Trenton Malleable Iron Co., New York Avenue, Trenton, N. J., manufacturer of castings, has awarded contract to S. W. Mather & Sons, Greenwood Street, for a one-story addition on a two-story structure, estimated to cost \$16,000, exclusive of equipment. William A. Klemann, First National Bank Building, is architect.

The Board of Education, Atlantic City, N. J., has commissioned H. A. Stout, Guarantee Trust Building, architect, to prepare plans for a five-story vocational school, on Surf Place, to cost \$175,000.

The Hamburg Boiler Works, Inc., Hamburg, Pa., is planning for the installation of a plate bending roll and other equipment.

Fire, July 2, destroyed a portion of the motor truck body manufacturing plant of the Palm Body Co., Inc., Reading, Pa., with loss estimated at \$25,000. It is planned to rebuild.

The Consumers' Ice Co., New Castle, Pa., is perfecting plans for the construction of a large ice-manufacturing and refrigerating plant. A list of machinery will soon be available.

Plans are under way for a reorganization of the Monitor Bi-Loop Radiator Co., Lancaster, Pa., under the direction of William C. Bidlack, Lancaster, who recently acquired the company's plant and business for \$92,315. It is proposed to

make extensions in the existing works and resume the production of radiators, boilers and kindred equipment, as heretofore manufactured.

The Wincroft Stove Works, Middletown, Pa., has called a special meeting of stockholders on Aug. 29 to arrange for an increase in capital from \$50,000 to \$300,000, about \$100,000 of which will be used for the construction of a new plant at Florin, Pa. James G. Balfour is secretary.

The Lehigh Water Co., Lehigh, Pa., is considering the installation of pumping machinery at its plant, in connection with proposed extensions and improvements, to cost about \$40,000.

The Chantrell Hardware & Tool Co., Millmont, Reading, Pa., will commence the erection of a one-story addition to cost about \$17,000, exclusive of equipment.

L. K. Bingaman, Allentown, Pa., and associates, have organized the Greene Power & Light Co., Paupack Power & Light Co., Palmyra Township Power & Light Co., Salem Power & Light Co., and Lackawaxen Power & Light Co., to install and operate plants and systems in the sections indicated by company name. Mr. Bingaman will act as treasurer.

Loch & Battista, Inc., Berwick, Pa., is being organized with a capital of \$50,000 to take over and expand the plant of the company of the same name, manufacturer of tanks and kindred products.

The Pennsylvania Power & Light Co., Allentown, Pa., is completing arrangements for the purchase of the municipal light and power plants at Pennsburg, Red Hill and Green Lane, for \$160,000. Extensions will be made, including the construction of additional steel tower transmission lines.

The Stanley Steel Welded Wheel Corporation, Wilkes-Barre, Pa., manufacturer of automobile wheels, is planning the establishment of a factory in the vicinity of Wyoming, Pa. Negotiations have been opened for the purchase of the former plant of the Matheson Motor Co.

Pittsburgh

PITTSBURGH, July 9.

BUSINESS in machine tools lately has not been as good as earlier in the year, but is much better than at this time last year. Many purchases are pending, but outside of the Westinghouse inquiry for tools for its Sharon plant, few orders are being closed. The market in heavy equipment and cranes also is quiet.

Permission has been granted to the H. C. Frick Coke Co., Carnegie Building, Pittsburgh, to construct a coal tippie with belt conveyor system at its Colonial coal mines, near Roscoe, Pa. Also, for the installation of barge-loading machinery and the construction of ice breakers at this location.

The Northwestern Motor Sales Co., State and Twenty-first Streets, Erie, Pa., is planning for the installation of equipment in its machine and repair shop, including a lathe, grinder, drill press and hand tools.

J. D. Westcott & Son, Union City, Pa., manufacturers of handles, etc., have tentative plans for rebuilding the portion of their plant at Richwood, W. Va., recently destroyed by fire, with loss estimated at \$40,000 including machinery.

The Pittsburgh Malleable Iron Co., Thirty-fourth and Smallman Streets, Pittsburgh, has purchased the property of the Pittsburgh Brewing Co., 95 x 335 ft., adjoining its works, for \$75,000. New buildings will be constructed and present structures remodeled by the new owner for extensions.

The J. Hoxworth Co., Canonsburg, Pa., is planning the installation of a lathe, drill press, air compressor and other equipment at its machine shop.

A manual training department will be installed in the new central high school to be erected on Somerset Street, Johnstown, Pa., estimated to cost \$900,000, for which bids will be called on a general contract in the fall. J. E. Adams, Nemo Building, is architect.

The Penn Bridge Co., Beaver Falls, Pa., has been granted permission to build a boat-building and repair plant, with shipways 800 ft. long on the Beaver River, Bridgewater, Pa. Plans will be prepared at once.

M. C. McClure, Youngsville, Pa., operating a machine and repair shop, is planning the installation of a lathe, drill press and other equipment.

Fire, June 30, destroyed a one-story building, 100 x 200 ft., at the plant of the Universal Steel Co., Curwin Station, near Bridgeville, Pa. An official estimate of loss has not been announced. It is planned to rebuild.

The Common Council, Sharon, Pa., is planning the installation of electrically-operating pumping machinery at the new sewerage disposal works, estimated to cost \$200,000.

Jesse E. Moore, Clay, W. Va., and associates, have acquired the plant of the Armormord Rubber Co., Morgantown, W. Va., at a public sale for \$67,000. The new owner, with Noah E. Moore and Joseph H. McDermott, both of Morgantown, are planning to organize a company to take over and improve the works and manufacture a similar line of products.

The Brady Warner Coal Corporation, Brady, W. Va., will make extensions in its property at Oakmont, Pa., including the installation of a conveyor system, picking table, rotary pump, electric substation, and other structures. Betterments are also under way at the coal properties at Brady.

The Robinson Motor Car Co., 212-18 Main Street, Johnstown, Pa., has plans for a three-story service and repair building, 65 x 140 ft., to cost approximately \$85,000. Machine tools, bench tools and other equipment will be installed. H. M. Rogers, Trust Building, is architect.

Baltimore

BALTIMORE, July 9.

INQUIRIES are being made by the Carey Machinery & Supply Co., 119 East Lombard Street, Baltimore, machinery dealer, for a quadruple punch and shear, 15 in. throat, with 30 in. throat on shearing end.

The Bureau of Supplies and Accounts, Navy Department, Washington, will take bids until July 17 for 1795 pounds of magnet wire for the Hampton Roads Navy Yard, schedule 1083, and for ammeters and voltmeters for the Portsmouth, N. H., Navy Yard, schedule 1085.

The Radiator Repair Shop, 712 West Broad Street, Richmond, Va., is planning the installation of a lathe, air compressor and other tools.

W. S. Austin, Maryland Trust Building, Baltimore, consulting engineers, is in the market for two 40-hp. motors, with rails, pulleys and controllers; two 20-hp. motors, with similar auxiliary equipment; one 7½-hp. motor with pulleys and compensator, and two 5-hp. motors.

The Ford Motor Co., Highland Park, Mich., has taken title to 40 acres on the eastern branch of the Elizabeth River, Norfolk, Va., for \$132,000, as a site for its branch assembling plant. Plans will be drawn for one-story steel and reinforced concrete buildings, to cost approximately \$100,000.

The Atlantic Coast Line Railroad Co., Wilmington, N. C., has awarded contract to the T. A. Amason Co., Thomasville, Ga., for a new engine house and addition to its machine shop, 62 x 105 ft., at Lakeland, Fla. The installation will include a large wheel lathe, 200-ton locomotive hoist and other heavy machinery. J. E. Willoughby is chief engineer.

The Common Council, Frankford, Del., is considering the installation of electrically-operated pumping machinery in connection with a proposed waterworks plant to cost about \$30,000.

A one-story steam-operated power house will be erected by the Wilmington Gas Co., Wilmington, Del., at its works.

The Susquehanna Power Co., Elkton, Md., has been granted permission to build a hydroelectric power plant on the Susquehanna River, near Conowingo, Md., with ultimate capacity of 360,000 hp., to cost in excess of \$15,000,000.

H. M. Shaw, Oxford, N. C., is in the market for a quantity of special pressed steel parts, and will contract with a going plant for the production.

The Carr Auto Spring Co., 290 West Broad Street, Richmond, Va., is planning the installation of a power shear, drill press and other equipment.

Charles B. McVay, Jr., chief of the Bureau of Ordnance, Navy Department, Washington, is taking bids until July 25 for nineteen 8 in./55 guns without breech mechanisms, and nineteen sets 8 in./55 gun forgings, as per proposal form and information on file.

The Eastern Power Co., Elkton, Md., recently organized, has acquired the electric light and power utilities at Elkton, Havre de Grace, Aberdeen, North East, Perryville, Rising Sun and Port Deposit, Md., and Oxford, Pa. Plans are being considered for extensions, including a hydroelectric power development and steel tower transmission system.

The Common Council, Hagerstown, Md., has made application for permission to issue bonds for \$300,000 for extensions in the municipal electric power plant and the installation of additional machinery. A. B. Grubmyer is manager of the station.

The F. D. Schluter Auto Welding Co., West Broad Street, Richmond, Va., is planning the installation of a lathe and drill press in its machine shop.

The Virginia Iron & Metal Co., Richmond, Va., has acquired the ordnance reserve depot of the Government at Seven Pines, near Richmond, comprising 1260 acres of land with a number of buildings. Some of the structures will

be remodeled and occupied by the new owner for an iron, steel and metal-working plant. L. Bernstein is president.

The Wade Mfg. Co., Wadesboro, N. C., is planning the construction of a hydroelectric power plant at its new textile mill, estimated to cost \$1,000,000. A one-story steam power house, 40 x 132 ft., will also be built. Robert & Co., Inc., Atlanta, Ga., is engineer.

D. C. Elphinstone, 408 Continental Building, Baltimore, machinery dealer, has inquiries out for a 10-ton gantry crane, steam or electric operation; one steam shovel, on wheels or crawler, with bucket 2½ yds. in capacity; four 18-ton saddle tank locomotives, 36-in. gage; and 40 4-yd. dump cars, 2-way, 36-in. gage.

The Amalgamated Mining & Developing Corporation, Marion, Va., recently organized with a capital of \$1,000,000, has tentative plans for the installation of electric and other equipment on local mineral properties. A. T. Short is president.

The Broad Street Bicycle Works, 506 West Broad Street, Richmond, Va., is planning the installation of a lathe and air compressor.

The W. T. Harvey Lumber Co., Fifteenth Street and Ninth Avenue, Columbus, Ga., has tentative plans for rebuilding the portion of its main mill, recently destroyed by fire with loss approximating \$75,000, including equipment. John Slaughter is general manager.

Bids will be received by the General Purchasing Officer, Panama Canal, Washington, until July 17 for electric transformers and copper cable for the Canal Zone, circular 1512.

A power plant will be constructed by the Stark Mills of Massachusetts, a subsidiary of the International Cotton Mills, Inc., 60 Federal Street, Boston, at its new textile mill at Hogansville, Ga., estimated to cost \$1,500,000.

Fire, June 28, destroyed the mill and power house of the Union Lumber Co., Marshville, N. C., with loss in excess of \$200,000 including equipment. It is planned to rebuild.

Evans & Kramer, West Broad Street, Richmond, Va., operating a machine shop, are planning the installation of a lathe, power saw and other equipment.

R. P. Johnson, Wytheville, Ga., machinery dealer, has inquiries out for a heavy planer for hard wood service, with end matcher attachment.

The Nitrate Agencies Co., 104 Pearl Street, New York, has acquired a building at Wilmington, N. C., and plans for the installation of machinery for fertilizer manufacture, including mixing, drying, loading and unloading equipment. A. C. Diehl is local manager.

The Kester Machine Co., Winston-Salem, N. C., will remodel a building on Main Street, two and one-half stories, 25 x 100 ft., for a local works.

Fuqua & Stone, Ashland, Va., operating a machine shop, are planning the installation of a drill press, lathe, electric drill and other equipment.

The Standard Sand & Gravel Co., Lillington, N. C., has inquiries out for a saddle tank locomotive, 20 to 40 tons, 36-in. gage, second-hand.

Buffalo

BUFFALO, July 9.

CONTRACT has been let by the Jamestown Metal Desk Co., Blackstone Avenue, Jamestown, N. Y., to Mullen, Guilanane & Ludwig, 303 North Main Street, for a one-story addition, estimated to cost \$50,000.

The Elmira, Corning & Waverly Railroad Co., Corning, N. Y., has authorized plans for rebuilding its repair shops and car barns at South Corning, recently destroyed by fire with loss in excess of \$75,000.

The Achilles Rubber Corporation, Binghamton, N. Y., has been organized with an active capital of \$150,000 to take over and expand the plant and business of the Achilles Rubber & Tire Co., North Floral Avenue. The new company is headed by W. M. Broderick, R. J. Brown and D. F. Rice.

The Jamestown Malleable Products Co., Tiffany Avenue, Jamestown, N. Y., is perfecting plans for an addition to its foundry and forge shop. New equipment will be installed.

The Buffalo Nipple & Machine Co., 335 Glenwood Avenue, Buffalo, has entered into contract with the Surfo Heating Co., 350 Franklin Street, for the manufacture of Surfo oil burners and oil-burning equipment, and is arranging to devote an entire floor of its plant to this line, with additional space later.

The Manufacturers' Tool & Die Corporation, South Water Street, Rochester, N. Y., is planning for the installation of die and tool-making equipment, to replace the portion of its works recently destroyed by fire. A. W. Formani is president.

Alfred C. Eiss, 59 Gold Street, Buffalo, has taken over the wagon works and forge shop at 1420 William Street, previously operated by Jacob Ritzel, and will remodel the plant for a machine shop and repair works for automobile service, and install equipment.

The Plattsburgh Gas & Electric Co., Plattsburgh, N. Y., is planning extensions in its plant and system in the vicinity of Chazy, N. Y.

The Mann Brothers Co., 340 Ohio Street, Buffalo, operating a linseed oil refinery, will commence the erection of a four-story and basement addition, 50 x 70 ft.

The Standard Oil Co. of New York, 26 Broadway, New York, is said to be arranging a list of equipment for installation at its proposed machine shop at Elmira, N. Y., estimated to cost \$50,000, including drill press, lathe, bench tools, etc.

The American Mfg. Concern, Everett and Work Streets, Falconer, N. Y., manufacturer of metal and wood toys and novelties, is perfecting plans for a three-story addition to cost \$55,000, including equipment.

The Van Dyke Taxi & Transfer Co., Buffalo, has leased three two-story and one three-story buildings at 119-25 Erie Street, for the establishment of a new service and machine repair works, with parts department. A new one-story shop will also be erected, 114 x 200 ft., for general mechanical service.

The Jamestown Regulator Co., Wellman Building, Jamestown, N. Y., is planning the installation of machine shop equipment and tools. F. H. Garfield is one of the heads of the company.

Detroit

DETROIT, July 9.

REORGANIZATION plans are being arranged by C. H. Wills & Co., Marysville, Mich., manufacturer of automobiles. The property of the company has been purchased for a nominal amount of \$750,000 by Kidder, Peabody & Co., 115 Devonshire Street, Boston, bankers, who will arrange financing for the new organization, to be known as the Wills-St. Claire Co., capitalized at \$15,000,000. Plans will be perfected for plant extensions and increased output. C. H. Wills will be head of the new company. The present organization has been operating under a receivership since last November.

The Studebaker Corporation, Detroit, will commence the erection of an addition to its local manufacturing plant at Brush and Piquette Streets to cost about \$65,000.

The Fruehauf Trailer Co., 1904 Harper Avenue, Detroit, is planning the construction of an addition, to be equipped primarily as a machine shop.

The Calumet & Hecla Mining Co., Calumet, Mich., is planning the installation of an electric hoist and other operating machinery at its local copper properties.

The Consumers Power Co., Jackson, Mich., has acquired the plant and system of the Citizens Electric Co., Battle Creek, Mich. The property will be merged and extensions and improvements made.

The Capitol Steel Corporation, Lansing, Mich., recently organized, has plans for a fabricating plant for the production of steel bars for reinforcing service and other steel specialties. Shearing, bending and other machinery will be installed. David S. Stockbridge is president, and Donald W. Sessions, vice-president.

The Blakely Mfg. Co., Fullerton Avenue and Monnier Road, Detroit, manufacturer of wire products, heretofore located at 5675 Wabash Street, has acquired the plant and equipment of the Liberty Stamping & Mfg. Co., Coon Street. The machinery will be removed to the new works of the purchasing company for expansion in the line of metal stampings and kindred specialties.

The J. W. Murray Mfg. Co., 1975 Clay Street, Detroit, manufacturer of automobile equipment and parts, is concluding negotiations for the purchase of seven acres on Jones Avenue, near the line of the Western Pacific Railroad Co., Oakland, Cal., for a new branch plant to serve the Durant and Chevrolet automobile works in this section. It is estimated to cost \$250,000 with machinery.

The Detroit Air-Cooled Car Co., Wayne, Mich., manufacturer of air-cooled automobiles, is disposing of a preferred stock issue of \$1,200,000, the larger part of the proceeds to be used for expansion and the purchase of additional machinery. W. J. Doughty is managing head of the company.

The Arcadian Consolidated Mining Co., Calumet, Mich., is planning the construction of a new power house to replace the structure recently destroyed by fire. Plans are also under consideration for the installation of new hoisting machinery and other surface operating equipment at the copper mines.

The Board of Education, 1354 Broadway, Detroit, has inquiries out for eight change lathes, Worcester type, for installation in the manual training departments at the local schools, to include face plates, jaw chucks and other appurtenances. C. A. Gadd is business manager.

Cleveland

CLEVELAND, July 9.

THE Toledo, Ohio, Board of Education has placed orders against its recent list of 16 machine tools for a new manual training school, dividing the business among a number of manufacturers and limiting the purchases of one type of machines to two of one make to provide a good assortment of tools.

A company in the automotive field purchased a round lot of machines the past week and new inquiries for considerable equipment have come from two Detroit car builders, apparently with a view to taking estimates on expenditures for proposed extensions. The demand as a whole is quieter than last month. Dealers report a decline in volume of single machine orders and in inquiries.

The equipment of the Grant Motor Car Corporation, Cleveland, was sold at public auction by the receiver July 6. It included about 20 machines.

The Lees-Bradner Co., Cleveland, manufacturer of gear cutting machinery, has had plans prepared for its proposed extension. It will be a one-story building, approximately 100 x 160 ft., one bay of which will be used for machine shop purposes and the remaining three bays for an erecting shop.

The American Can Co., Cleveland, has had plans prepared for a one-story addition, estimated to cost \$40,000.

The plant of the Marion Metallic Vault Co., Marion, Ohio, has been sold by the receiver to E. H. Fishmer and Thomas H. Clark, of Gallion, Ohio, both connected with the National Vault Co. They will use the plant for the manufacture of metal boxes and other sheet metal products.

The Vutex Rubber Co., Barberton, Ohio, will erect a two-story factory, 50 x 60 ft.

The Dillon Electric Co., Canton, Ohio, has completed a two-story and basement addition, 70 x 105 ft., which will double the capacity.

The Bluffton Mfg. Co., Bluffton, Ohio, will erect a one-story addition, 40 x 98 ft.

The Krude-Wierk Mfg. Co., Defiance, Ohio, recently incorporated with a capital stock of \$50,000, has commenced the erection of a plant for the manufacture of metal containers.

The Pennsylvania Railroad has commenced the erection of a new machine shop for locomotive repair work at Mt. Vernon, Ohio, to replace a portion of its shops recently burned. It will be a two-story steel structure.

The Akron Lamp Co., Akron, Ohio, manufacturer of gas-line lamps, will build an addition, doubling its present capacity. J. Steese is president and A. C. Dick secretary and treasurer.

Milwaukee

MILWAUKEE, July 9.

NEW business is developing slowly in the local machine-tool market. Scattering orders for one or a few items were booked the past week, but volume was light, especially in view of the interruption of the holiday. Some inquiry is being made by automotive shops, although in the main these cover needs for replacement rather than extension of production facilities. The condition of this industry, however, affords confidence that considerable tool business will develop next fall. Railroad requirements have been appearing slowly.

The Nash Motors Co., Kenosha, Wis., is starting work on the reconstruction and enlargement of the forge shop of its main plant in Kenosha, which will require miscellaneous equipment now being placed. A "hospital" building being erected at the four-cylinder car works in Milwaukee for final adjustments and inspection, needs only a small number of items, most of which have been purchased.

Considerable electrical machinery will be required for the new State Street bridge at Milwaukee, bids on the complete construction of which will be taken until July 20 by Roland E. Stoelting, commissioner of public works. It will be a double-leaf trunnion bascule structure, 267 ft. long overall

and 67 ft. wide, and replace a swing bridge which will be scrapped.

The Lipman Refrigerator Car & Mfg. Co., Beloit, Wis., will erect a new machine shop and assembling floor, 80 x 260 ft., at the main works in South Beloit, and has let the general contract to A. C. Woods & Co., Rockford, Ill. It will cost about \$100,000. The equipment of the present isolated machine shop will be transferred and supplemented by a considerable list of new tools. J. R. Morash is general manager.

The Acme Brass & Metal Works, Inc., Waupaca, Wis., which a year ago took over the plant and business of the defunct Jorgenson Mfg. Co., has given an option to an unnamed Chicago manufacturer for the purchase of the property. A decision will be made July 10. The plant has been in only partial operation for months. The prospective new owner intends to resume the manufacture of gas engine primers, piston rings and other automotive parts and specialties, which was the principal business of the Jorgenson company.

The Board of Education, Weyauwega, Wis., is taking bids until Aug. 1 for the construction of a three-story high and vocational training school, 98 x 154 ft., designed by Auler & Jensen, architects, Oshkosh, Wis. It will cost \$175,000.

The Perfect Pump & Mfg. Co., Marshfield, Wis., has changed its name to the Northern Equipment & Pump Co. The plant was moved to Ashland, Wis., some time ago and several new lines of production have been entered which are requiring frequent additions to the equipment.

The Stout Institute at Menomonie, Wis., a State-owned school for training vocational instructors, has been granted an immediate appropriation of \$75,000 for the construction of a new steam generating plant and the purchase of boilers, engines and other equipment. Bids probably will be taken about July 30. Burton E. Nelson is president and director.

Indiana

INDIANAPOLIS, July 9.

A ONE-STORY motor truck machine and repair shop, 60 x 130 ft., will be erected by the Board of Public Works, Indianapolis, for the city fire department. It will cost in excess of \$50,000 with equipment. Edward Doepers, City Hall, is architect and engineer. George Kutsell is secretary.

James W. Smith, Inc., Indianapolis, recently organized with a capital of \$100,000, has leased property at 924-26 Fort Wayne Avenue for a new plant to manufacture refrigerating machines up to about 5 tons in capacity. The plant will be devoted entirely to assembling, with parts manufacture handled under contract by several local plants. Later the new company purposes to erect new works for all features of production. James W. Smith is president. Charles G. Roberts and E. R. Wilbrink are also officials of the new company.

The Cambridge Light & Power Co., Cambridge, Ind., has been organized with a capital of \$75,000, to equip and operate an electric power plant and system for local commercial service. Frank M. Taylor and Robert S. Ashe, both of Cambridge, head the company.

The Columbus Wood Turning Co., Columbus, Ind., has abandoned plans for rebuilding its local plant, recently destroyed by fire, and will establish a new factory in the former plant of the White Wood Products Co., Crothersville, Ind. Machinery will be installed at once.

The Kendall Motor Products Co., Fort Wayne, Ind., has acquired the plant and business of the Kendall Engineering Corporation, defunct, manufacturer of piston rings and other automotive products. The works will be extended to provide an output of about 85,000 piston rings per month. A branch factory will be maintained at Detroit.

The Merchants Heat & Light Co., Indianapolis, has arranged for an increase in capital stock from \$2,500,000 to \$3,000,000, a portion of the proceeds to be used for extensions in electric generating plants and system.

The B. K. Settergren Co., Bluffton, Ind., recently organized, has taken over the local plant of the W. B. Brown Co., manufacturer of furniture, recently dissolved, for the establishment of a factory to manufacture pianos and piano mechanisms. Improvements will be made, including the installation of additional equipment for the new line of production.

The Northern Indiana Gas & Electric Co., Fort Wayne, Ind., is arranging an appropriation of \$250,000 for extensions and improvements in its generating plants and system during the present year.

Clarence C. Shipp, head of Shipp & Co., Indianapolis, manufacturer of heating and ventilating equipment, has acquired a water power site and power house at Flatrock Mill,

near Shelbyville, Ind., and will remodel and improve the present station for a hydroelectric generating plant. It will cost about \$125,000.

Chicago

CHICAGO, July 9.

THE Denver & Rio Grande Western has closed for its entire list of tools, involving a total expenditure of approximately \$275,000. Action on the Elgin, Joliet & Eastern inquiry is now placed at a week hence. The Chicago, Burlington & Quincy will probably not close against its list for another month. The propositions on the additional tools inquired for by the Chicago & North Western have not yet been passed upon by the mechanical department of that road, so that purchases are not expected for some time. Outside of railroad buying, the market is exceedingly quiet, orders and inquiries from industrial sources being few.

The H. G. Saal Mfg. Co., 1800 Montrose Avenue, Chicago, has purchased a tract, 406 x 627 ft., on Lincoln Street between Argyle and Ainslie Streets, as the site for a plant to manufacture phonograph motors, radio equipment, automobile accessories, etc. It will cost \$600,000.

The Goss Printing Press Co., 1535 South Paulina Street, Chicago, has purchased property, 92 x 455 ft., at the southeast corner of Fifteenth Place and Wood Street, for the expansion of its facilities.

Hruby Brothers, 112 North La Salle Street, Chicago, have a contract for a one and two-story plant, 100 x 160 ft., at Fifty-second Avenue and Thirty-third Street, Cicero, Ill., for Maximum Power Motors, Inc. The structure will cost \$200,000, and next fall it is planned to start a second unit, 80 x 160 ft., to cost \$150,000. The company is a successor to the Universal Gas Electric Co., Lawrence, Kan., and will manufacture a gas-electric six-wheel truck and motor bus, having a four-wheel drive. Garvin Denby is president and W. R. Hostetter, secretary.

James Burns, 64 West Randolph Street, Chicago, is taking bids on a two-story garage addition, Morse Avenue, near Sheridan Road, Chicago, for P. C. Winn., to cost \$150,000.

Otto and Walter Schmidt, owners of the Rienzi Garage, 554 Diversey Parkway, Chicago, have let contract for a two-story garage, 150 x 250 ft., at Lehmann Court, to cost \$250,000.

The American Steel Foundries, Chicago, is completing an extension, 85 x 200 ft., to the cleaning room of its plant at Indiana Harbor, Ind.

The C. G. Spring Co. of Illinois, a subsidiary of the C. G. Spring Bumper Co., Detroit, has purchased a building at 1445 West Thirty-eighth Street, Chicago, and will use it as a branch warehouse and factory for the manufacture of automobile bumpers. It has a floor space of 60,000 sq. ft.

The Tri-City Malleable Casting Co., which recently purchased a foundry from the Moline Plow Co., East Moline, Ill., is installing five annealing ovens.

The American Products & Package Co., recently organized for the manufacture of children's toys, Anderson, Ind., has purchased the Lavelle foundry building on Chase Street.

The Ford Motor Co., Detroit, which is constructing an assembling and body plant at Hegewisch, Ill., expects to start operation with 5000 employees within six weeks. The present assembling plant in Chicago will be sold and the 800 employees will be transferred to Hegewisch.

B. L. Salzman, Chicago, dealer in salvaged machinery, purchased the plant of the Western Boiler Pipe Co., Monmouth, Ill., at auction. Approval of the sale by the court has not yet been obtained.

The Anchor Concrete Machinery Co., Adrian, Mich., will build a one-story addition, 59 x 65 ft.

The Orton & Steinbrenner Co., Chicago, manufacturer of locomotive cranes, will erect a one-story machine shop addition at Huntington, Ind.

The Mineral Rubber Products Co., 1919 Second Avenue, Moline, Ill., is building a plant to cost \$20,000.

The Frank Foundries Corporation, Moline, Ill., is erecting additions to cost \$20,000. The improvements include 2000 sq. ft. additional core room space, a retaining wall for storage of raw material, a new carpenter shop, a fire-proof pattern vault and additional space in the molding room and sand and castings storage house.

The State Board of Control, State House, St. Paul, Minn., will take bids for a new power plant at the institutional buildings to be erected at Winona, Minn., estimated to cost \$575,000. Plans are also nearing completion for a one-story and basement power house addition to the State mechanical

laundry, St. Paul, to cost \$35,000. C. H. Johnston, 615 Capitol Bank Building, is architect for both projects.

The Viking Pump Co., 309 East Fourth Street, Cedar Rapids, Iowa, has plans for a one and two-story addition, 80 x 152 ft. George Wyth is general manager.

The Elgin, Joliet & Eastern Railroad Co., 208 South La Salle Street, Chicago, will take bids for a new one-story car shop at East Joliet, Ill., 300 x 500 ft., to cost about \$350,000.

The Chicago, Burlington & Quincy Railroad Co., 547 West Jackson Boulevard, Chicago, will proceed with the construction of the second unit of its new locomotive shops at Denver, Colo., to cost \$1,000,000 with machinery. Work on the first unit is nearing completion.

The Climax Engineering Co., foot of Fourth Street, Clinton, Iowa, is considering plans for a new one-story foundry. C. B. Stebbins is head.

The Chicago Association of Commerce, 10 South La Salle Street, Chicago, is in receipt of an inquiry (2239) from a company at Pittsburgh, desiring to locate a local bronze foundry for the production of special grill work and kindred specialties. Also, from a company at Monterey, Mex. (2216), which is in the market for machinery for the manufacture of wire hair pins and small wire goods.

The Jacob E. Decker & Sons Packing Co., Mason City, Iowa, is planning for the erection of a new two-story machine shop, 75 x 95 ft.

Gumbinsky Brothers, Inc., 2261 South Union Avenue, Chicago, manufacturer of paper products, has plans under way for a new mill and power plant at Thirty-first Street and California Avenue, to cost in excess of \$2,500,000 with machinery. A. Epstein, 2001 West Pershing Road, is architect and engineer. Oscar Gumbinsky heads the company.

The United States Engineer Office, Milwaukee, will receive bids until July 16 for two 1 cu. yd. capacity, clamshell buckets, circular 444, and two horizontal, duplex piston steam pumps, circular 445.

The Iowa Malleable Iron Co., Fairfield, Iowa, is taking bids for a new two-story and basement building, 27 x 64 ft., estimated to cost \$50,000.

Cincinnati

CINCINNATI, July 9.

THE machine tool market continues dull, buying generally being confined to single tools. Inquiries however, continue in fair volume and are mostly for one or two machines, but buyers are hesitant about closing deals. There was no railroad buying of consequence the past week, but some activity on the part of manufacturers was noted in connection with a small list of tools wanted for the Pennsylvania Railroad shops at Columbus. The Norfolk & Western Railroad is expected to begin purchasing against its recent list this week.

For the first time in nearly a year machine shop and foundry help is available, a slackening in building operations being given as the reason, though the fact that union foundries recently increased wages one dollar a day is given as the reason for the sudden oversupply of foundry help. Foundries operating open shops have not all granted the full wage increase, though it is possible that some may do so.

The William Powell Co., Cincinnati, valve manufacturer, will let contracts probably this week for an addition to its plant on Spring Grove Avenue. It will be built of reinforced concrete, three stories, and will cost approximately \$80,000. It is expected to be ready for occupancy about Jan. 1, 1924. Considerable machine tool equipment will be installed, though officials of the company have not yet prepared a complete list of the tools required.

The plant of the Dayton Steel Foundry Co., Dayton, Ohio, was damaged to the extent of about \$30,000 by a fire which started in the core room July 1. Operations were suspended for only a few days and the plant is again running on full time.

The Duro Pump & Mfg. Co., Dayton, manufacturer of pumps and water systems, is having plans prepared for a five-story reinforced concrete addition, with 50,000 sq. ft. of floor space. Bids will probably be called within a few weeks. C. F. Brunette is president.

The Schuyler Mfg. Co., Springfield, Ohio, has established a plant in the Shuey Building, and will manufacture automobile accelerators and fire alarm systems. W. L. Schuyler is president.

The Hamilton Caster & Mfg. Co., Hamilton, Ohio, has installed new equipment in its shop for the production of

steel casters. It reports the largest volume of business in its history.

The Dayton Firedoor Co., Dayton, formerly the Cleveland Firedoor Co., has established a plant at 413 West Fifth Street for the manufacture of automatically operated fire doors. Walter Geis is manager of the company.

The Amerag Corporation, Allentown, Pa., has purchased the plant, equipment and rights to manufacture tractors formerly owned by the London Motor Plow Co., London, Ohio.

The Gulf States

BIRMINGHAM, July 9.

A SITE has been selected by the United North & South Oil Co., Luling, Tex., for a new refinery to cost \$100,000, for which plans will be prepared at once.

The Dunigan Tool & Supply Co., Inc., Breckenridge, Tex., is planning the construction of a branch machine shop and mechanical works for oil-well machinery at Amarillo, Tex., where a site is now being selected.

The Trans-Continental Oil Co., Fort Worth, Tex., is planning to proceed with the construction of a new refinery, on which work was suspended several months ago. Arrangements will be made for the machinery installation. The refinery will be used for lubricating oil production and is estimated to cost \$850,000.

The G. R. Mueller Co., Brown-Marx Building, Birmingham, machinery dealer, is inquiring for one 100-hp. and a 30 to 35-hp. motor, each provided with rails, pulley and starter, controller, etc.

The Bender Steel, Iron & Supply Co., Shreveport, La., has acquired a site and will have plans prepared for a one-story machine shop and foundry.

C. N. Humason, city manager, Lufkin, Tex., will receive bids until July 16 for pumping machinery for a local water-works station, 26 x 85 ft., and traveling crane. H. N. Roberts, 4227 Irving Avenue, Dallas, Tex., is consulting engineer.

The Common Council, Georgiana, Tex., has tentative plans for a municipal electric light and power plant.

The Elgin Ice & Cold Storage Co., Elgin, Tex., recently organized, has taken over the plant and property of the Elgin Light & Power Co. Plans are under way for extensions in the cold storage and refrigerating plant and the installation of additional equipment. W. L. Ayers is head.

Fire, June 30, destroyed a portion of the plant of the Texas Wheel & Body Co., Commerce and Dove Streets, Dallas, Tex., manufacturer of automobile wheels and bodies, with loss estimated at \$75,000. It is planned to rebuild.

The Childress Light & Ice Co., Childress, Tex., is perfecting plans for an addition to its power plant, and the installation of generating equipment and auxiliary machinery. Frank Houston is general manager.

The O'Neals Lime Works, Inc., Birmingham, has arranged an appropriation of \$500,000 for its new plant at Calera, Ala. The installation will include 10 kilns, each with capacity of 40 tons per day, power house, machine shop, crushing and quarry plant. All machinery will be electrically operated, direct-connected. The Schaffer Engineering & Equipment Co., 2818 Smallman Street, Pittsburgh, is engineer. John H. Adams is president, and Albert Strafford, secretary-treasurer.

Fire, June 29, destroyed a portion of the No. 1 plant of the Conners Steel Co., Birmingham, with loss estimated at \$200,000, including equipment. It is planned to rebuild.

The Dallas Railway Co., Dallas, Tex., has arranged an appropriation of \$1,000,000 for extensions in its power house and system, including the installation of additional machinery, to be used over a period of about 18 months.

The Brevard County Power Co., 1422 Munsey Building, Baltimore, recently organized under Maryland laws with capital of \$200,000, has tentative plans for a power house and system in Brevard County, Fla., to cost \$75,000. The new company is headed by Herman A. Lang and Joseph A. Slattery.

The Car Parts Depot Co., El Paso, Tex., has awarded contract to the Anderson Construction Co., El Paso, for a new one-story works on Texas Street. B. Edwin Ryan is president.

A one-story power house will be erected by the Louisiana Glass Mfg. Co., Monroe, La., recently organized with a capital of \$400,000, at its proposed plant, to cost close to \$200,000 with machinery. James S. Stock, Lancaster, Ohio, heads the company.

The H. L. Brown Paper Co., Inc., Monroe, La., recently organized, has awarded a general contract to the Morton C. Tuttle Co., Boston, for the first unit of its proposed plant near Monroe. It will cost close to \$1,000,000 with machinery.

and will include a power house. George F. Hardy, 309 Broadway, New York, is engineer. H. L. Brown, Orange, Tex., is president.

The Florida Steel & Wire Co., Jacksonville, Fla., recently organized, has plans for a local factory to manufacture wire nails, fencing and kindred products, to cost in excess of \$500,000.

Fire, June 28, destroyed the phosphoric acid plant of the American Cyanamid Co., 511 Fifth Avenue, New York, at Brewster, Fla., with loss estimated at \$400,000, including machinery and power equipment. The plant was operated in conjunction with the Virginia-Carolina Chemical Co., Richmond, Va.

The Common Council, Bryan, Tex., will extend the municipal electric power plant and install additional equipment to double the present capacity. E. E. McAdams is city manager in charge.

The Bastrop Glass Co., Bastrop, La., recently organized, will take over the plant of the Ouachita Valley Glass Co., constructed at a cost of \$250,000. It is purposed to install additional equipment.

The Simpson County Lumber Co., Strengthford, near Waynesboro, Miss., is planning to rebuild the portion of its mill and power house, recently destroyed by fire with loss of \$65,000, including equipment. John O'Keefe is general manager.

The Caddo-DeSoto Cotton Oil Co., Shreveport, La., has plans for a new works, 60 x 325 ft., with extension, 80 x 200 ft., to replace its plant recently destroyed by fire. It will cost about \$60,000 with machinery. M. O. Stockbridge is vice-president.

The Corona Coal Co., Townley, Ala., will install new electrical and mechanical equipment at its local properties.

The Blue Ribbon Refineries, Inc., Brownwood, Tex., has been organized to take over and expand the Blue Ribbon Refinery, idle for some months. The plant will be developed for handling 2000 bbl. of crude oil every 24 hrs. J. A. Goodman, Memphis, Tenn., is one of the heads of the company.

The Central South

St. Louis, July 9.

PLANS have been authorized by the Louisville Petroleum Refining Co., Inter-Southern Building, Louisville, for the erection of a new refinery, estimated to cost \$250,000 with machinery. W. M. Mitchell is one of the heads of the company, in charge.

The Grayson & Dressel Mfg. Co., Ashland, Ky., manufacturer of gas stoves and parts, has leased the Leffingwell Building, Front Street, totaling about 10,000 sq. ft., for a new plant. Improvements will be made and machinery installed at once. It is expected to develop a capacity of 200 stoves per day, or more than triple the present output.

The Farber Fire Brick Co., Farber, Mo., has plans for the erection of an addition, estimated to cost \$100,000, including machinery. R. H. Miller is head.

The Common Council, Drexel, Mo., is planning the installation of electrically-operated pumping machinery at its new municipal waterworks. J. P. Davis, 305 Central Trust Building, Jefferson City, Mo., is engineer.

The Board of Trustees, Vanderbilt University, Nashville, Tenn., is taking bids until July 16 for a new power house and other buildings at the institution, to cost in excess of \$1,200,000. A mechanical laundry plant will also be built. Coolidge & Shattuck, 122 Ames Building, Boston, are architects.

The Clinchfield Portland Cement Co., Kingsport, Tenn., has acquired property near Macon, Ga., and will have plans prepared for a new plant with initial capacity of about 2000 bbl. per day. A power house and machine shop will be built. The entire works with machinery will cost about \$1,000,000. John A. Miller is president, and W. M. Bennett, second vice-president and treasurer.

The Leggett & Platt Spring Bed & Mfg. Co., Carthage, Mo., is considering the erection of a one or two-story addition, estimated to cost \$55,000 including equipment.

L. A. Nickell and R. V. Bartow, Troy, Mo., have acquired the local municipal electric light and power plant, and will operate as a private enterprise. Plans are under consideration for extensions and the installation of additional equipment. The purchasers formerly operated the Edina Light Co.

The State Board of Affairs, Capitol Building, Oklahoma City, Okla., will commence the erection of a two-story power house at the local University Hospital, estimated to cost \$60,000. New machinery will be installed. Layton, Smith & Forsyth, 701 Southwest National Bank Building, are architects.

The Okemah Gas & Electric Co., Okemah, Okla., recently

organized with a capital of \$50,000, is planning the installation and operation of a power plant and system. S. T. Palmer and T. E. Standley, Okemah, head the company.

The Duncan Machinery Co., P. O. Box 265, Knoxville, Tenn., machinery dealer, has inquiries out for a generator to be installed in a power house for sawmill service, including auxiliary electrical equipment.

The Daenzer Motor Co., Sterling, Kan., is planning the installation of equipment in its machine shop, including a power lathe, drill press, emery wheel and stand, cylinder grinder, small tools and transmission apparatus. C. H. Daenzer is head.

The Inman Furniture Co., Kentucky and Thirteenth Streets, Louisville, is considering plans for a new four-story plant, estimated to cost \$500,000 with machinery. Charles W. Inman is president.

Fire, June 28, destroyed the plant of the Quickel Automobile & Supply Co., Albuquerque, N. M., with loss estimated at \$75,000 including equipment. It is planned to rebuild.

The National Radio Mfg. Co., 225 West Second Street, Oklahoma City, Okla., is planning the installation of equipment for a local plant, including lathe, circular saw, polishing machine, grinder, etc., all electrically-operated. Dudley Shaw is president.

The Camp Branch Coal Corporation, Ivel, Ky., is planning the installation of electrical and mechanical equipment, including shaking screens, cutting equipment, transmission apparatus, etc.

The Springfield Packing Co., 741 South Weller Street, Springfield, Mo., plans the installation of a refrigerating plant at its proposed local packing works, estimated to cost \$300,000. T. F. Wallace is head.

The Illinois Central Railroad Co., 135 East Eleventh Place, Chicago, has awarded general contract to Joseph E. Nelson & Sons, 3240 South Michigan Avenue, for its new car and locomotive repair shops at Central City, Ky., estimated to cost \$370,000 including equipment. F. L. Thompson is chief engineer.

The Common Council, Van Buren, Ark., is considering the installation of electrically-operated pumping machinery in connection with waterworks construction and improvements, estimated to cost \$200,000, in which amount bonds have been sold.

The Dixie Cotton Oil Co., Batesville, Ark., recently formed with a capital of \$1,600,000, is said to be considering plans for the construction of a cotton oil mill, estimated to cost \$250,000 with machinery. D. D. Adams, Little Rock, Ark., and W. O. Scroggins, Batesville, are heads.

A lathe, drill press, cylinder grinder and other equipment will be installed in the machine shop in the two-story automobile service building, 50 x 110 ft., to be erected at Camden, Ark., by O. B. Burns, Camden, to cost approximately \$40,000.

The Common Council, Sayre, Okla., has tentative plans for a municipal electric power plant. A fund of \$115,000 will be provided for this and other municipal improvements. V. V. Long & Co., 1300 Colcord Building, Oklahoma City, Okla., are engineers.

Philip R. Dunton, Ponca City, Okla., will build a one-story addition to his local power plant, 52 x 80 ft. A list of equipment will be arranged.

The Motch Motor Co., Middlesboro, Ky., will equip a machine shop in its new two-story building, 50 x 180 ft., for which plans are being prepared by Manley & Young, Knoxville, Tenn., architects. A lathe, air compressor, cylinder grinder and drill press will be installed.

A one-story power plant, 56 x 80 ft., will be erected at Forrest City, Ark., for the Forrest City Special Improvement District. Plans have been completed by F. J. Herring, Forrest City, engineer.

The Pacific Coast

SAN FRANCISCO, July 3.

PLANS are being prepared by the Southern Pacific Railroad Co., 65 Market Street, San Francisco, for a new power house at San Luis Obispo, Cal., to cost \$50,000.

The Williams Brothers Aircraft Co., San Francisco, will commence the erection of a new one-story plant for parts manufacture and assembling on South Twenty-fifth Street, to cost \$30,000, by day labor.

The Fruit Growers' Association, Beaumont, Cal., is considering plans for a local ice-manufacturing and cold storage plant. A. E. Isham is in charge.

Ralph Bennett, Central Building, Los Angeles, and associates, have made application to build a hydroelectric power plant on Big Rock Creek, Los Angeles County, to develop a capacity of 6100 hp., estimated to cost \$600,000.

The Washington Iron Works, 1100 Seattle Boulevard,

Seattle, has plans for a one-story addition, 126 x 525 ft., to cost \$75,000.

The West Coast Laundry Machinery Co., 3238 Seventeenth Street, San Francisco, has filed plans for a new two-story plant at Seventeenth and Capp Streets.

The Board of Education, Merced Union High School District, Merced, Cal., is having plans drawn for a one-story machine and mechanical shop, 40 x 120 ft., for the vocational department. Allison & Allison, Hibernian Building, Los Angeles, are architects.

The Atchison, Topeka & Santa Fe Railway Co., Kerckhoff Building, Los Angeles, plans to rebuild the portion of its lumber mill at San Bernardino, Cal., destroyed by fire June 30, with loss estimated at \$400,000 including equipment and stock.

The Eureka Smelting Co., Eureka, Nev., recently organized to take over the Eureka-Nevada Railroad, and local mining properties, has disposed of a bond issue of \$2,500,000, the larger portion of the proceeds to be used for the erection of a new smelting plant and power house. George T. Wilson is president, and Charles N. Sigison, secretary and treasurer.

The Nevada-California Power Co., Riverside, Cal., has tentative plans for a hydroelectric generating plant on the North Fork of Rush Creek, Mono County, estimated to cost \$160,000.

The Eureka Lumber & Planing Mill, East Fourteenth Street and Thirty-sixth Avenue, Oakland, Cal., has tentative plans for rebuilding the portion of its plant recently destroyed by fire with loss approximating \$60,000, including equipment. A new site is being selected. C. W. Gilbert is one of the heads of the company.

The Great Western Power Co., 14 Sansom Street, San Francisco, has authorized plans for additions to its two hydroelectric power plants at Caribou and Las Plumas, Cal., estimated to cost \$1,000,000 each.

The Hayes-Hunt Corporation, Grand Rapids, Mich., manufacturer of automobile bodies for the Durant Motors, Inc., with which it is affiliated, will soon break ground for a new plant at Oakland, Cal., to cost \$100,000.

Canada

TORONTO, July 9.

DEMAND for machine tools fell off slightly the past week and orders closed were somewhat below those of previous weeks. This decline, however, is looked upon as only temporary, caused chiefly by the present holiday season, and it is the general opinion that the active demand which has been a feature of the market almost since the beginning of the year will be resumed without any considerable delay. The erection of new plants and additions to old ones continues active throughout the greater part of the Dominion and equipment for many of these has not been purchased. On the whole, the outlook is bright and many manufacturers are showing interest in the more up-to-date equipment which is steadily replacing obsolete tools and machines. Small tools and supplies are in good demand with a steady flow of orders from users in practically all lines of manufacture.

The sawmill at Warsaw, Ont., owned by William Selkirk, was totally destroyed by fire when struck by lightning on July 4, causing a loss estimated at \$20,000.

The Town Council, Haileybury, Ont., contemplates the erection of a pumping station and the purchase of equipment. Debentures amounting to \$20,000 will be sold to provide funds.

A. W. Allen & Son, Middleton, N. S., proposes to build a wood-working factory, 45 x 90 ft., concrete block construction, also a sawmill, 45 x 85 ft. of similar construction. As yet no equipment has been purchased.

It is reported that Brooks Steam Motors, Ltd., 1304 C. P. R. Building, Toronto, contemplates the erection of a factory at Weston, Ont., construction to be started in the fall.

Kendal Brothers, 165 Iberville Street, Montreal, have started excavation work for a \$2,500,000 grain elevator for the Montreal Harbor Commission. The steel contract has been awarded to the Canadian Vickers, Ltd., Montreal.

William Kennedy & Sons, Ltd., 232 St. James Street, Montreal, will prepare plans for a power plant and dam at Cat Calumet Island Falls, on the Ottawa River near Bryson, Que., for the Ottawa & Hull Power Co., Ltd.

The Guelph Stove Co., Guelph, Ont., is contemplating improvements and additions to its plant during the summer.

It is proposed to install equipment and double the present capacity.

A. Faustin, Ltd., 622 Beaudry Street, Montreal, is in the market for a small lathe and other equipment for use in architectural iron work.

The Detroit Steam Motor Corporation of Canada, 13 King Street West, Toronto, has taken over the building formerly occupied by the Davidson Motor Co., Whitby, Ont., and will assemble cars there until its own plant in Whitby is completed.

The Chicoutimi Pulp Co., Montreal, is contemplating the erection of a new pulp mill.

The General Motors Corporation of Canada, Oshawa, Ont., has awarded contracts for two buildings, one, 100 x 600 ft., to be used as an assembling plant, and the other, 130 x 200 ft., as a maintenance station. Work will start immediately.

It is reported that the Canadian Westinghouse Co., Hamilton, Ont., has awarded the general contract for the erection of a \$200,000 addition to its plant to the W. H. Yates Co. This will be a part of the West Hamilton plant and will be the first of a series of buildings to be erected at a total cost of \$1,500,000.

The Continental Wood Products Co., Ltd., Montreal, is planning to spend \$1,500,000 on the erection of a kraft mill in northern Ontario, where the company has secured a large tract of timber land.

Preparations are under way at Campbellford, Ont., for the construction of a power plant estimated to cost \$500,000.

Plans of New Companies

C. M. Olson, Inc., 233 Broadway, New York, has been incorporated with capital stock of \$25,000, to act as a manufacturers' agent and to rent machine tools and contractors' equipment.

The Bonmor Bronze Corporation, New York, has been incorporated with capital stock of \$10,000 to manufacture brass and bronze lighting fixtures. The corporation is now functioning, with a plant at 117 East 129th Street, and show rooms at 139 Fifth Avenue. L. H. Fischer, 33 Union Square West, is president.

The Remington Automotive Corporation, recently incorporated with capital of \$100,000, will manufacture automotive equipment. It will establish a plant in five or six months and soon will be in the market for stamping and screw machines. In the meantime the National Acme Co., New York, and the Fossberg Mfg. Co., Bridgeport, are doing assembling work for the corporation. C. A. Mandolini, 17 West Sixtieth Street, New York, is president.

The Midwest Air Filters, Inc., New York, recently incorporated for \$200,000, to sell filtering equipment, engines, etc., will not be active for several months.

The Watson Geach Co., New York, has been incorporated with a capital stock of \$30,000 to sell iron ores and metals. It is a successor H. A. Watson & Co.

The Brightman Brothers Co., Columbus, Ohio, has been incorporated with capital stock of \$250,000 and has purchased 11½ acres of land located between Markison and Woodrow Avenues, South Columbus. It has let contracts for the erection of buildings and for equipment, and expects to be in operation within 90 days. The company will manufacture hexagon steel bar nuts, shafting machinery, and straightening machinery. Later on additional buildings and equipment will be added in order to manufacture turned and drawn shafting, screw stock and cold drawn products. The officers of the new company were formerly connected with the Brightman Mfg. Co., Columbus, and are as follows: C. W. Brightman, president; G. F. Brightman, vice-president and treasurer; H. M. Brightman, vice-president, H. L. Brightman, secretary, and T. L. Brightman, assistant secretary.

The Waynesboro Nut Lock Co., Inc., Waynesboro, Pa., has been organized to acquire the business of the Bull Dog Lock Washer Co., Baltimore, and is now installing machinery to manufacture the lock washer. The officers of the company are: W. S. Bostwick, president; Mark Landis, vice-president; C. A. Luons, treasurer; and O. M. Peters, secretary and general manager.

The Brooklyn Pulley Co., Brooklyn, recently incorporated with capital stock of \$25,000, is still in a formative stage, but the incorporators hope to establish a plant in Brooklyn in the near future. The company will manufacture pulleys and transmission equipment. A. Lubart, 85 Fifth Avenue, Brooklyn, is president.

The National Gas Burner Co., Brooklyn, has been incorporated for \$20,000 to manufacture gas burners. Frank H. Wheelock, 537 Forty-fifth Street, Brooklyn, president of the company and holder of the patents, has announced that stock will be on sale in a few days, and that the company will probably have a plant established in Brooklyn by Sept. 1.

Current Metal Prices

On Small Lots, Delivered from Merchants' Stocks, New York City

The following quotations are made by New York City warehouses.

As there are many consumers whose requirements are not sufficiently heavy to warrant their placing orders with manufacturers for shipments in carload lots from mills, these prices are given for their convenience.

On a number of items the base price only is given, it being impossible to name every size.

The wholesale prices at which large lots are sold by manufacturers for direct shipment from mills are given in the market reports appearing in a preceding part of THE IRON AGE under the general heading of "Iron and Steel Markets" and "Non-ferrous Metals."

Iron and Soft Steel Bars and Shapes

Bars:

Refined iron bars, base price.....	3.54c.
Swedish bars, base price.....	7.50c.
Soft steel bars, base price.....	3.54c.
Hoops, base price.....	5.19c.
Bands, base price.....	4.39c.
Beams and channels, angles and tees	
3 in. x ¼ in. and larger, base.....	3.64c.
Channels, angles and tees under 3 in.	
x ¼ in., base.....	3.54c.

Merchant Steel

Per Lb.

Tire, 1½ x ½ in. and larger.....	3.60c.
(Smooth finish, 1 to 2½ x ¼ in. and larger).....	4.10c.
Toe-calk, ½ x ¾ in. and larger.....	4.60c.
Cold-rolled strip, soft and quarter hard.....	7.50c. to 8.50c.
Open-hearth, spring-steel.....	5.00c. to 7.50c.
Shafting and Screw Stock:	
Rounds.....	4.40c. to 4.65c.
Squares, flats and hex.....	4.90c. to 5.15c.
Standard tool steel, base price.....	15.00c.
Extra tool steel.....	18.00c.
Special tool steel.....	23.00c.
High speed steel, 18 per cent tungsten.....	75c. to 80c.

Tank Plates—Steel

¼ in. and heavier.....	3.64c.
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Sheets

Blue Annealed

Per Lb.

No. 10.....	4.59c.
No. 12.....	4.64c.
No. 14.....	4.69c.
No. 16.....	4.79c.

Box Annealed—Black

Soft Steel C. R., One Pass Per Lb.	Blued Stove Pipe Sheet Per Lb.
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Nos. 18 to 20.....	4.45c. to 4.95c.
Nos. 22 and 24.....	4.50c. to 5.00c.	5.25c.
No. 26.....	4.55c. to 5.05c.	5.30c.
No. 28.....	4.65c. to 5.15c.	5.40c.
No. 30.....	4.85c. to 5.35c.

No. 28 and lighter, 36 in. wide, 10c. higher

Galvanized

Per Lb.

No. 14.....	4.75c. to 5.25c.
No. 16.....	4.90c. to 5.40c.
Nos. 18 and 20.....	5.05c. to 5.55c.
Nos. 22 and 24.....	5.20c. to 5.60c.
No. 26.....	5.35c. to 5.85c.
No. 27.....	5.50c. to 6.00c.
No. 28.....	5.65c. to 6.15c.
No. 30.....	6.10c. to 6.65c.

No. 28 and lighter, 36 in. wide, 20c. higher

Welded Pipe

Standard Steel

Wrought Iron

Black	Galv.	Black	Galv.
½ in. Butt... —41	—24	½ in. Butt... —4	+19
¾ in. Butt... —46	—32	¾ in. Butt... —11	+9
1-3 in. Butt... —48	—34	1-1½ in. Butt... —14	+6
2½-6 in. Lap... —44	—30	2 in. Lap... —5	+14
7-8 in. Lap... —41	—11	2½-6 in. Lap... —9	+9
9-12 in. Lap... —34	—6	7-12 in. Lap... —3	+16

Steel Wire

BASE PRICE* ON NO. 9 GAGE AND COARSER

Per Lb.

Bright basic.....	5.00c.
Annealed soft.....	5.00c.
Galvanized annealed.....	5.65c.
Coppered basic.....	5.65c.
Tinned soft Bessemer.....	6.65c.

*Regular extras for lighter gage.

Brass Sheet, Rod, Tube and Wire

BASE PRICE

High brass sheet.....	19¾c. to 20¾c.
High brass wire.....	20¼c. to 21¼c.
Brass rods.....	18 c. to 19 c.
Brass tube, brazed.....	27¾c. to 28¾c.
Brass tube, seamless.....	25½c. to 26½c.
Copper tube, seamless.....	27 c. to 28 c.

Copper Sheets

Sheet copper, hot rolled, 23½c. to 24½c. per lb. base.

Cold rolled, 14 oz. and heavier, 3c. per lb. advance over hot rolled.

Tin Plates

Bright Tin	Grade "AAA" Charcoal 14x20	Grade "A" Charcoal 14x20	Coke—14 x 20	Prime	Seconds
			80 lb..	\$6.80	\$6.55
			90 lb..	6.90	6.65
			100 lb..	7.00	6.75
	IC..	\$11.00	IC..	7.15	6.90
	IX..	12.25	IX..	8.15	7.90
	IXX..	13.50	IXX..	9.15	8.90
	IXXX..	14.75	IXXX..	10.15	9.90
	IXXXX..	16.50	IXXXX..	11.15	10.90

Terne Plates

8-lb. coating, 14 x 20

100 lb.	\$7.00 to \$8.00
IC.....	7.25 to 8.25
IX.....	8.25 to 8.75
Fire door stock.....	9.00 to 10.00

Tin

Straits pig.....	42c.
Bar.....	48c. to 53c.

Copper

Lake ingot.....	17½c.
Electrolytic.....	17 c.
Casting.....	16¾c.

Spelter and Sheet Zinc

Western spelter.....	7½c.
Sheet zinc, No. 9 base, casks.....	10¼c. open 10¾c.

Lead and Solder*

American pig lead.....	8¼c. to 8¾c.
Bar lead.....	12c. to 13c.
Solder, ½ and ½ guaranteed.....	29c.
No. 1 solder.....	27c.
Refined solder.....	23c.

*Prices of solder indicated by private brand vary according to composition.

Babbitt Metal

Best grade, per lb.....	75c. to 90c.
Commercial grade, per lb.....	35c. to 50c.
Grade D, per lb.....	25c. to 35c.

Antimony

Asiatic.....	8c. to 8½c.
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Aluminum

No. 1 aluminum (guaranteed over 99 per cent pure), in ingots for remelting, per lb....32c. to 33c.

Old Metals

Business is quiet and the market is practically unchanged. Dealers' buying prices are nominally as follows:

	Cents Per Lb.
Copper, heavy crucible.....	12.50
Copper, heavy wire.....	13.50
Copper, light bottoms.....	11.50
Brass, heavy.....	8.50
Brass, light.....	5.50
Heavy machine composition.....	11.25
No. 1 yellow brass turnings.....	7.50
No. 1 red brass or composition turnings.....	9.00
Lead, heavy.....	5.50
Lead, tea.....	4.50
Zinc.....	4.25

